United States Department of Agriculture

Forest Service

Pacific Southwest Region

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Preliminary Environmental Assessment

for

Deer Valley 4wd Trail Meadow Restoration and Blue Lakes/Meadow Lake Road Maintenance Project

Eldorado National Forest

Introduction

This environmental analysis is tiered to and is part of the implementation of the Record of Decision (ROD) for the 2013 Eldorado National Forest Travel Management SEIS (R5-MB-252). The Travel Management SEIS ROD identified 18 routes on the Eldorado National Forest where corrective actions and further biological assessments for federally listed aquatic species were needed prior to re-opening the routes to public wheeled motorized vehicle use. This Environmental Assessment documents the environmental analysis for the portion of the Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (9N01) that were identified in the Travel Management SEIS ROD.

The proposed project area is located along the Deer Valley 4wd Trail (19E01), section 5, T.8 N., R 19 E., M.D.B.&M. and the Blue Lakes/Meadow Lake Road (9N01), between the areas of Meadow Lake and Lower Blue Lake, section 30, 25, and 26 T.9 N., R 18 E., M.D.B.&M within Alpine County, California. See map in Appendix E.

Purpose and Need

As a part of the ROD for the Travel Management SEIS, 18 routes were identified where corrective actions and further biological assessments for newly federally listed aquatic species were needed prior to adding the routes back onto the Eldorado National Forest Motor Vehicle Use Map (MVUM) as designated for public wheeled motor vehicle use. As stated in the Travel Management SEIS ROD, trails would remain closed to public motorized vehicles until: 1) the routes were brought into compliance with the 2004 Sierra Nevada Forest Plan Amendment (SNFPA) Standard and Guideline (S&G) 100 as it pertains to the hydrologic connectivity of meadows (pp. 18), and 2) a Biological Assessment and conferencing or consultation with U.S. Fish and Wildlife Service (USFWS) were completed if corrective actions or vehicle traffic could affect the Sierra Nevada yellow-legged frog or the Yosemite toad or their critical habitats (pp. 31). A portion of the Deer Valley 4wd Trail (8N83/19E01) and Blue Lakes/Meadow Lake Road (9N01) were identified as two of the 18 routes.

The purpose of this project is to implement the corrective actions necessary to bring the routes into compliance with S&G 100, implement restoration activities to limit resource impacts (such as reducing sedimentation), and complete conferencing or consultation with USFWS for newly listed aquatic species (Sierra Nevada yellow-legged frog, Yosemite toad).

Deer Valley 4wd Trail (19E01)

On June 26, 2014, an interdisciplinary team of Forest Service specialists visited the Deer Valley 4wd Trail to assess trail condition with respect to 2004 Sierra Nevada Forest Plan Amendment (SNFPA), Standard and Guideline (S&G) 100 and developed a preliminary proposal for corrective actions at the second crossing with Deer Creek (Meadow 9N83-2). During the site assessment it was determined that the trail was in fact currently meeting S&G 100 with respect to hydrologic connectivity, but that some corrective actions could be taken to limit resource impacts within the meadow.

For Deer Valley 4wd Trail, there is a need to implement restoration work along the route to limit resource impacts associated with the existing Deer Valley 4wd Trail at Deer Valley (meadow 9N83-2) and Clover Valley (9N83-1), and address potential impacts to Yosemite toads from reopening the route, while continuing to provide opportunities for high-country semi-primitive motorized vehicle use as described in the ENF Land and Resource Management Plan (LRMP 1989).

The resource impacts identified along the Deer Valley 4wd Trail include:

- Active erosion of the western bank of Deer Creek (Meadow 9N83-2), which will likely impact the trail in its current alignment.
- Impacts to riparian vegetation from the widening of the existing stream crossings at Deer Creek (Meadow 9N83-2) and Clover Valley (9N83-1).
- Impacts to riparian vegetation from user created stream crossings on the west side of Deer Creek (Meadow 9N83-2).
- Sediment entering Deer Creek from both approaches to the stream crossing (Meadow 9N83-2)
- Potential impacts to Yosemite toad from public wheeled motor vehicles traveling on the Deer Valley 4wd Trail.

There is a need to confer/consult with USFWS regarding impacts to the Sierra Nevada yellow-legged frog, and Yosemite toad, from both the proposed restoration work and reopening the closed portions of the route.

Blue Lakes/Meadow Lake Road (9N01)

Blue Lakes/Meadow Lake Road (9N01) was reviewed by an interdisciplinary team of Forest Service Specialists on June 26, 2014 for necessary corrective measures to bring the route into compliance with S&G 100. During the field review, it was determined that standard road maintenance activities, such as installing rolling dips, cleaning out/upgrading undersized culverts, and re-grading the road would address existing issues with hydrologic connectivity.

For the Blue Lakes/Meadow Lake Road, there is a need to implement necessary corrective measures to comply with S&G 100 for Blue Lakes/Meadow Lake Road, including actions to mitigate potential effects to Yosemite toad, while continuing to provide opportunities for high-country semi-primitive motorized vehicle use as described in the ENF Land and Resource Management Plan (LRMP 1989).

Resource impacts identified in along the Blue Lakes/Meadow Lake Road (9N01) include:

- Excessive runoff and sediment from the Blue Lakes/Meadow Lake Road (09N01) is reaching meadows in multiple locations.
- Multiple culverts are impeding the movement of surface water and ground water through the meadows.
- Potential impacts to Yosemite toad from public wheeled motor vehicles traveling on the Blues Lakes/Meadow Lake Road.

There is also a need to confer/consult with USFWS regarding impacts to the Sierra Nevada yellow-legged frog, and Yosemite toad, from both the proposed road maintenance and restoration work and reopening the closed portions of the route.

Public Involvement

The Deer Valley 4wd Trail Meadow Restoration and Blue Lakes/Meadow Lake Road Maintenance Project has been listed in the Eldorado National Forest Schedule of Proposed Actions (SOPA) since October, 2014. A scoping letter with a description of the purpose and need and proposed action was sent to interested parties including all appellants of the 2013 Eldorado National Forest Travel Management SEIS, Alpine County, and representatives of local tribes on November 17, 2014, with comments requested by December 3, 2014. Forty-nine letters were received with comments on the proposed action. The list of persons providing scoping comments is provided in Appendix A.

The following minor changes were made to the purpose and need and proposed action following public scoping to correct inconsistencies or clarify the project proposal.

- The introduction was updated to clarify that the project is tiered to the ENF Travel Management EIS (R5-MB-156) and SEIS (R5-MB-252).

- The portion of Deer Valley 4wd Trail closed under the ENF Travel Management SEIS was incorrectly described in Proposed Action (Alternative 1). The correct portion of trail is between Clover Valley and approximately 0.25 miles north of the Eldorado and Stanislaus National Forest boundary. Corrections to the proposed action and project maps have been made to match the Travel Management SEIS.

- Clarifications were made to indicate that closure signs would be placed at both trailheads for the Deer Valley 4wd Trail.

- Clarifications were made to indicate the seasonal closure applies to wheeled motor vehicles.

- Additional details were added to the description of proposed road maintenance activities on Blue Lakes/Meadow Lake Road.

- Rototilling was removed from the project at Deer Valley Meadow (8N83-2).

Comments were used to formulate issues concerning the proposed action. Issues serve to highlight effects or unintended consequences that may occur from the proposed action and alternatives, giving opportunities during the analysis to reduce adverse effects and compare trade-offs for the decision maker and public to understand. Issues were categorized as non-substantial or substantial. Non-substantial issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. A list of non-substantial issues and reasons why they were found non-substantial may be found in the scoping comment summary in the project record**.** Substantial issues identified through scoping on the Deer Valley 4wd Trail Meadow Restoration and Blue Lakes/Meadow Lake Road Maintenance Project include:

Issues

Issue 1: A seasonal closure from January 1 to July 31 would impact recreation opportunities along the trail.

Key Indicator Measure: Average number of days 19E01 and 9N01 are open to public wheeled motorized vehicle use and expected crowding along routes.

Alterative 3 was developed to address this issue.

Issue 2: A seasonal closure from January 1 to July 31 would not adequately prevent impacts to listed amphibian species on the portion of routes closed under Travel Management SEIS.

Key Indicator Measure: Potential for impacts to listed amphibian species from wheeled motor vehicles on portion of routes closed under ENF SEIS.

Alternative 3 and 4 were developed to address this issue.

Issue 3: Vehicles would continue to travel on routes during the seasonal closure without a physical closure.

Key Indicator Measure: Potential for vehicles to illegally travel on routes during the seasonal closure.

Alternative 3 and 4 were developed to partially address this issue. Also see Alternatives Considered by Eliminated from Detailed Study.

Alternatives

This section describes the proposed action and alternatives to the proposed action, including a no action alternative, modified seasonal closure alternative, extended seasonal closure alternative, gates on Deer Valley 4wd Trail alternative, and re-route of Blue Lakes/Meadow Lake Road alternative.

Four of these alternatives were analyzed in detail, and they include: Alternative 1 (Proposed Action), Alternative 2 (No Action), Alternative 3 (Modified Seasonal Closure), and Alternative 4 (Extended Seasonal Closure). Two alternatives were considered based on comments received during public scoping, but were eliminated from detailed study, and they include: Gates on Deer Valley 4wd Trail Alternative and Re-route of Blue Lakes/Meadow Lake Road Alternative.

Alternatives Considered in Detail:

Alternative 1: Proposed Action
Deer Valley 4wd Trail (19E01): The proposed action would implement restoration activities to reduce resource impacts associated with the Deer Valley 4wd Trail at Deer Valley (meadow 9N83-2) and Clover Valley (meadow 9N83-1) and to limit potential impacts to Yosemite toad from public motor vehicle travel after the trail is reopened. Proposed action items include:

1) **MVUM**: Add Deer Valley 4wd Trail (19E01) back to the MVUM. Adding the Deer Valley 4wd Trail to the MVUM is not contingent on the completion of the proposed corrective actions at Meadows 9N83-2 and 9N83-1 since evaluation has found the route to be consistent with S&G 100.

2) **Forest Order**: A seasonal closure from January 1st to July 31st would be instituted for the portion of Deer Valley 4wd Trail currently closed under the Travel Management SEIS ROD to limit impacts to Yosemite toads from public wheeled motor vehicle use. Closure signs and maps would be placed at both trailheads, Clover Valley, and the southern portion of the trail 0.25 miles north of the Eldorado and Stanislaus National Forest boundary alerting the public of the seasonal closure.

3) **Trail Reroute**: A short reroute (< 500 feet) of the Deer Valley 4wd Trail (19E01) on the west side of Deer Creek would be completed in order to move the trail away from areas of active stream bank erosion while improving the angle of approach to the existing stream crossing. The new trail segment would be located approximately 100 feet west of the existing trail and would require the removal of approximately 20 trees (5 trees >20 inch DBH) and stumps to clear a new trail corridor. Material generated from construction of the reroute (wood chips and logs) would be used to block dispersed areas, define a new trail, and apply mulch to the old trail corridor. The old roadbed would be planted with locally collected vegetation.

4) **Hardening crossing at Deer Valley (Meadow 9N83-2)**: Native rock and boulders from the trail or the Clover Valley sediment field would be imported to harden the approaches to Deer Creek using large cobbles and rock between 8-16" diameter. The stream crossing would also be delineated with boulders to limit the width of the crossing at both sides of Deer Creek.

5) **Stream Bank Restoration**: The proposed project would restore stream banks in Deer Valley (9N83-2) and Clover Valley (9N83-1) meadows impacted by past off-trail vehicle travel using revegetation methods such as seeding, willow cuttings, and transplanting sod plugs.

Blue Lakes/Meadow Lake Road (9N01): The proposed action for Blue Lakes/Meadow Lake Road consists of road maintenance activities to bring the road into compliance with S&G 100 while also limiting potential impacts to Yosemite toad from vehicle travel. Specific proposed action items include:

1) **MVUM**: Add Blue Lakes/Meadow Lake Road (9N01) back to the MVUM after corrective actions (road maintenance activities as described in item 3 below) have occurred to restore hydrologic connectivity.

2) **Forest Order**: A seasonal closure from January 1st to July 31 would be instituted for the portion of Blue Lakes/Meadow Lake Road currently closed under the Travel Management SEIS to limit impacts to Yosemite toad from public wheeled motor vehicle use. Seasonal closure signs would be placed west of Twin Lake, seasonally closing approximately the last mile of the route to public motor vehicles.

3) **Road Maintenance:** Typical maintenance activities would include: maintaining/installing BMP's (catch basins at culverts, new culverts where needed and gravel on the steep sections of the roadway, repairing rolling dips), linear grading, and clearing out/upgrading undersized culverts within the specified alignment and grade tolerances. Ground disturbance will be within approximately 25ft of road centerline.

Alternative 2: No Action Alternative

Under this alternative, no work would be done on Deer Valley 4wd Trail (19E01) or the Blue Lakes/Meadow Lake Road (9N01), and the routes would not be reopened to public wheeled motor vehicle use.

Alternative 3: Modified Seasonal Closure

Alternative 3 would be similar to the proposed action (Alternative 1), except for the following: Alternative 3 would use a seasonal closure determined by snowmelt measured at Blue Lakes for the portion of the Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road currently closed under the Travel Management SEIS ROD. Under Alternative 3, the seasonal closure would prohibit wheeled motorized use of the Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road until 6 weeks after documented snowmelt (i.e. snow water content < or = 1.0 inch) as reported from the Blue Lake Snow Sensor Station. In addition to posting closure signs and maps on Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road, the Forest would post the status of the trail on the Eldorado National Forest website and the Amador District Office. In the event that the Blue Lakes snow sensor is not functioning, Forest Service staff would attempt to verify snow condition at Blue Lakes and/or within the suitable habitat in the vicinity of the Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road during the spring snowmelt to determine when the seasonal closure would be lifted from the trail. Based on past data from the Blue Lakes Snow Sensor Station (2005-2014), Deer Valley 4wd Trail and Blue Lakes Road would have opened between June 24 and August 20 under Alternative 3. Alternative 3 would also include installation of a gate west of Twin Lake on Blue Lakes/Meadow Lake Road to limit vehicle travel on the road during the seasonal closure.

Alternative 4: Extended Seasonal Closure
Alternative 4 would be similar to the proposed action (Alternative 1), except for the following: This Alternative would implement a seasonal closure from January 1 to August 15 along the portion of Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road currently closed under the Travel Management SEIS ROD. This alternative would also include installation of a gate west of Twin Lake on Blue Lakes/Meadow Lake Road to limit vehicle travel on the road during the seasonal closure.

Alternatives Considered but Eliminated from Detailed Study

Gates on Deer Valley 4wd Trail (19E01): Installing gates on the segment of Deer Valley 4wd Trail currently closed by the Travel Management SEIS ROD was considered to prevent vehicle travel on the trail during seasonal closures. Although suitable locations were identified in the vicinity of the northern trailhead for the route, the interdisciplinary team was unable to locate a suitable site for a gate at the southern end of the trail because of the open terrain and the remoteness of the area. Based on recommendations from the interdisciplinary team, this alternative was eliminated from detailed study because vehicles could easily circumvent a gate or physical barricade causing additional resource damage along the trail without increasing the project's efficacy in meeting the purpose and need.

Reroute of Blue Lakes/Meadow Lake Road (9N01): A reroute of Blue Lakes/Meadow Lake Road was considered but eliminated from detailed study because of the absence of a preferable reroute to the existing road alignment. Options to move the route to the north are limited due to the location of the Mokelumne Wilderness boundary. Potential alignments south of the existing road would still cross through aquatic features and would move the existing road into the Reynolds Peak Inventoried Roadless area. Due to the above resource concerns, a reroute of Blue Lakes/Meadow Lake Road was not considered in detail for this project.

Design Features

- The use of ground-based mechanized/motorized vehicles or equipment to implement the restoration activities would not occur during the proposed seasonal closures for Deer Valley 4wd Trail (19E01) and the Blue Lakes/Meadow Lake Road (09N01) to limit impacts to Yosemite toad and Sierra Nevada yellow-legged frog.

- Restoration activities associated with Deer Creek and the unnamed perennial stream between Meadow Lake and Twin Lake would be completed during a period of low streamflow. This typically occurs in late summer and early fall. The project Hydrologist will be consulted before implementation of work to the Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (09N01) to insure that streamflow is low enough for road maintenance and restoration activities to occur.

- Restoration activities associated with Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (9N01) would be monitored for efficacy as outlined in the Eldorado National Forest Travel Management SEIS Settlement Agreement Monitoring Plan (2015).

- All equipment would avoid traveling off the hardened road surface (i.e. outside of the route footprint) or crossing into aquatic habitat *to the extent possible* during restoration activities associated with the hardening of the approaches at the stream crossing at Deer Creek (in meadow 9N83-2) along the Deer Valley 4wd Trail and the culvert installation, repair, and maintenance on the Blue Lakes/Meadow Lake Road. Aquatic habitat includes the portion of route 19E01 that crosses directly through Deer Creek.

- Where equipment travels off the hardened road surface for restoration work, such as the reroute, these areas shall be surveyed for existing Yosemite toads just prior to starting work to avoid crushing. Yosemite toads and Sierra Nevada yellow-legged frogs will be surveyed for by qualified Forest Service personnel just prior to starting work to avoid crushing. If either Sierra Nevada yellow-legged frogs or Yosemite toads are found within the area, the potential for direct impacts shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in USDI FWS 2014. Since Yosemite toads have been found to have site fidelity to burrows, extra attention will be given to identify existing burrows during the survey. Burrows will be avoided where possible.

- Fuels and other toxic materials will be stored outside of riparian conservation areas (per SNFPA S&G 99) to limit the exposure of the listed species to the toxic materials.

- The use of low velocity water pumps and screening devices for pumps (per SNFPA S&G 110) will be utilized during drafting for project treatments to preventing mortality of eggs, tadpoles, juveniles, and adult Sierra Nevada yellow-legged frog and Yosemite toad. A drafting box measuring 2 feet on all sides covered in a maximum of 0.25 inch screening is required.

- Should any Forest Service sensitive plant species or watch list plant species be located associated with this project location, district biology staff would be informed, and steps taken to evaluate, and mitigate any possible effects not covered by this assessment.

- A limited operating period (LOP) for northern goshawks (February 15 through September 15) would restrict restoration activities along a portion of the Deer Valley 4wd Trail that is located within ¼ mile of the goshawk activity center, unless surveys confirm that goshawks are not nesting. The timing of the LOP would coincide with the hydrology design criteria for restoration activities taking place during a period of low stream flow.

- All off-road equipment would be cleaned to insure it is free of soil, seeds, vegetative matter or other debris that could contain seeds before entering the project area.

- Any straw or mulch used for erosion control would be certified weed-free. A certificate from the county of origin stating the material was inspected is required.

- Any revegetation material used for restoration or erosion control would be from a locally collected source.

- Infestations of noxious weeds that are discovered during project implementation would be documented and locations mapped. New sites would be reported to the Forest botanist.

- All gravel, fill, rock or other material would be weed free. Onsite sand, gravel, or rock would be used where possible.

- Known cultural resource sites will be flagged prior to work and avoided during implementation. There is to be no vehicle travel, vehicle or material staging, rock collection, or tree felling within the flagged areas.

- Should any previously unrecorded cultural resources be encountered during implementation of this project, all work should immediately cease in that area and the District Archaeologist be notified immediately. Work may resume after approval by the District Archaeologist; provided any recommended Standard Protection Measures are implemented.

Tiering and Incorporation by Reference

In order to eliminate repetitive discussion and documentation, this Environmental Assessment tiers to the Eldorado National Forest Land and Resource Management Plan (LRMP of 1989) as amended by the Sierra Nevada Forest Plan Amendment (January 2004), the 2008 Eldorado National Forest Public Wheeled Motorized Travel Management EIS and ROD (March 2008), and the Eldorado National Forest Travel Management SEIS ROD (June 2013).

The following documents prepared for this analysis are incorporated by reference and available upon request:

- Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project Hydrology Report (Steve Markman, Eldorado National Forest, July 14, 2015)

- Memo to Rick Hopson regarding Meadow 09N83-2 (19E01-2) and compliance with Standard & Guideline #100 (Steve Markman, Eldorado National Forest, September 18, 2014)

- Riparian Conservation Objectives (RCO) Consistency Report, Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Steve Markman, Kathryn Wilkinson, and Matt Brown. Eldorado National Forest, July 14, 2015)

- Terrestrial Wildlife Biological Evaluation/Assessment, Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Chuck Loffland, Eldorado National Forest, June 16, 2015)

- Bald Eagle/ Golden Eagle for Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Chuck Loffland, Eldorado National Forest, April 30, 2015)

- Migratory Land bird Conservation Report for Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Chuck Loffland, Eldorado National Forest, June 18, 2015)

- Aquatic Species Biological Assessment and Evaluation, Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Kathryn Wilkinson, Eldorado National Forest, May 26, 2015)

- Management Indicator Species Report, Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Chuck Loffland and Kathryn Wilkinson, Eldorado National Forest, June, 16 2015)

- Biological Assessment/Evaluation for Botanical Species, Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Matt Brown, Eldorado National Forest, August 6, 2015)

- Cultural Resource Management Report, Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Miranda Gavalis, Eldorado National Forest, May 8, 2015)

- Recreation Resource Assessment, Deer Valley 4wd Trail Meadow Restoration and Blue Lakes Road Maintenance Project (Becky Shufelt, Eldorado National Forest, August 10, 2015)

Environmental Consequences

This section summarizes the physical, biological, social environments of the affected project area and the potential changes to those environments due to implementation of the alternatives. It describes the environmental impacts of the proposal in relation to whether there may be significant environmental effects as described at 40 CFR 1508.27. Further analysis and conclusions about the potential effects are available in resource specialist reports and other supporting documentation located in the project record. These reports contain more detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the resource specialist relied upon to reach the conclusions in this EA.

Aquatics

A Biological Evaluation/Biological Assessment (Wilkinson, 2015) for aquatic species was prepared to document the potential effects to Region 5 Forest Service (FS) sensitive species and threatened, endangered, or proposed species and their designated or proposed critical habitat. Lahontan cutthroat trout, Yosemite toad, and Sierra Nevada yellow-legged frog have the potential or are known to occur in the project area. The following discussion summarizes effects to these species:

Alternative 2 (No Action):

Under the No Action alternative, no corrective or restoration actions would be implemented, and the portions of Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (09N01) that are currently closed would remain closed to public motor vehicle use. There would be no direct effects to Lahontan cutthroat trout, Yosemite toad or Sierra Nevada yellow-legged frog or their habitats (generally suitable or proposed critical habitat).

Indirect effects would still occur because taking no action in these areas would not implement the corrective and restoration actions identified as necessary to reduce erosion, stabilize stream crossings, and rehabilitate riparian vegetation along the Deer Valley 4wd Trail (19E01) and bring the Blues Lakes/Meadow Lake Road (09N01) into compliance with S & G 100. It is expected that, even in the absence of motorized use occurring, the meadows and aquatic habitats along routes 19E01 and 09N01 will continue to be impacted or further degraded. The potential habitat degrading effects of sedimentation may affect all three species.

Yosemite Toad

Yosemite toads breed in very shallow water habitats within meadows and therefore, their reproductive success is quite dependent on a stable water table. Eggs and tadpoles are very vulnerable to desiccation and freezing in these shallow water habitats. An alteration of meadow hydrology could impact reproductive success and recruitment, and subsequently the persistence of the species.

Sierra Nevada Yellow-Legged Frog

A reduction in depth of deep-water habitat may affect individual Sierra Nevada Yellow-legged frog by making them more susceptible to annual freezing and potentially reduce their overwintering success. A loss of refuge or foraging features may increase Sierra Nevada yellow-legged frog susceptibility to predation or retard their development and ultimately impact recruitment rates and population sizes over longer periods of time. Yosemite toads are dependent on wet meadow habitats for breeding. Not correcting the erosion and stream bank riparian vegetation issues proposed in this project may lead to meadow de-watering.

Lahontan Cutthroat Trout

Lahontan cutthroat trout typically seek out sediment-free gravel substrate in riffles and pool crests to spawn, therefore continued sedimentation into the streams could reduce the availability of Lahontan cutthroat trout spawning habitat. Continued increases in sediment delivery to suitable aquatic habitat may also cause a reduction in deep water habitat, fill the spaces between and under refuge features, and bury/cover foraging substrates.

Yosemite Toad and Sierra Nevada Yellow-legged Frog

Alternatives 1, 3, 4 (Action Alternatives)

Direct effects (disturbance, injury, and mortality) to Sierra Nevada Yellow-legged frog and Yosemite toad could occur during project implementation from streambank restoration, the proposed trail reroute, hardening of the stream crossing on Deer Valley 4wd Trail (19E01), and road maintenance activities proposed for the Blue Lakes/Meadow Lake Road (9N01). Direct impacts are most likely for Yosemite toads as compared to Sierra Nevada yellow-legged frog, as they have been found along 9N01 and 19E01 (Sierra Nevada yellow-legged frogs have not been detected in the project area) and the species is less effective at fleeing from potential threats compared to Sierra Nevada yellow-legged frogs. Design features common to all three action alternatives are expected to greatly limit impacts to Yosemite toad and Sierra Nevada yellow-legged frog from the project implementation, however direct and indirect impacts are still likely.

For Sierra Nevada yellow-legged frog, the proposed road work on the Blue Lakes/Meadow Lake Road (9N01) and hardening the stream crossing, and short reroute at Deer Valley (meadow 8N83-2) could have a short-term impact of additional sediment entering aquatic habitats during project implementation. This risk will occur over a limited period. For Yosemite toad, alteration to rodent burrows, rocks, logs, or tree stumps used as refugia along the reroute could impact individual's growth and survival as well as increase the risk of predation of individuals fleeing disturbed habitat.

Once the routes are reopened for public wheeled motor vehicle use, indirect impacts to Yosemite toad and Sierra Nevada yellow-legged frog may occur along both routes since vehicle travel could result in some sediment and chemical contamination entering aquatic habitats. However, once implemented the proposed restoration and road maintenance actions are expected to reduce this risk of indirect impacts along both routes by improving riparian vegetation (19E01), hardening/delineating stream crossings (19E01), and reducing road sediment from entering aquatic habitat (9N01).

Direct effects from vehicles traveling on both the Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (9N01) to Yosemite toad are likely since the species occurs along both routes and does not typically exhibit an escape/retreat behavior when approached. This behavioral response increases the likelihood that individuals would be disturbed, injured, or killed by vehicles traveling along the route.

Direct effects to Sierra Nevada yellow-legged frog from vehicles traveling on both routes is greatest within the wet crossings. Generally Sierra Nevada yellow-legged frogs are expected to successfully avoid injury or mortality from vehicles traveling on the Deer Valley 4wd Trail (19E01) by retreating into aquatic habitat (although some individuals would still risk crushing). There are no wet crossings along the Blue Lakes/Meadow Lake Road (9N01), so direct impacts are unlikely from vehicles traveling along the route. There is some risk that vehicles traveling along 9N01 and 19E01 could disturb individuals located adjacent to the road or within the wet crossings on 19E01, which could cause individual frogs to become susceptible to predation.

The proposed seasonal closures under all three action alternatives would limit the impact to individual Yosemite toads from motorized wheeled vehicles depending on the length of the seasonal closure (Table 1). The intent of implementing a seasonal closure is to limit impacts to Yosemite toads from public motorized vehicle use and minimize the overlap between motorized vehicle use and Yosemite toad habitat utilization in the vicinity of the trail. The risk of disturbance, injury, or mortality of adult Yosemite toads would be the greatest during breeding activity (within 2 weeks of snowmelt). However, since many factors can alter the length of breeding duration and the Yosemite toad's emigration to and from breeding sites (i.e. significant drops in temperature post snowmelt, and additional late season storms) adults may be present in the vicinity of breeding habitat for longer than 2 weeks. Based on the ecology of the toad and professional experience (Liang 2014, personal communication), it is expected that the majority of Yosemite toad movement in the project area should occur within six weeks of the documented snowmelt.

Despite the expected effectiveness of the proposed seasonal closure(s) on limiting the risk of direct effects to Yosemite toad and Sierra Nevada yellow-legged frog, the risk would not be fully mitigated. Yosemite toad stragglers and the potential for illegal motorized use during the seasonal closure could cause disturbance, injury, or mortality of Yosemite toads. Generally Sierra Nevada yellow-legged frogs present in wet crossings would attempt to avoid injury or mortality by retreating into aquatic habitat. Since the species has such a close affinity to water and the likelihood of disturbance to or crushing individuals is so low, the difference between the effectiveness of the three proposed seasonal closures for Sierra Nevada yellow-legged frogs is likely unmeasurable but potential differences for both species are described further in the table below (Table 1).

Table 1. Comparison of proposed seasonal closure under Alternative 1, 3, and 4 for listed amphibian species.

Species	Seasonal Closures		
	Alternative 1: -Jan 1 – July 31	Alternative 3: (Variable) -6-weeks post snowmelt	Alternative 4: -Jan 1 – August 15
Sierra Nevada Yellow-legged frog	Since SNYLF have a close affinity to water, the risk to the species as a result of motorized vehicle use on routes 19E01 and 09N01 are minimal year round. Nonetheless, this alternative would limit the duration of the year that individual SNYLF would be at risk of disturbance (at stream crossings) or crushing (in the upland habitat).	In comparison to Alternative 1, this alternative would provide similar benefits in providing a limited duration of the year in which SNYLF would be at risk of disturbance (at stream crossings) or crushing (in the upland habitat). However, in drier, low water years, this alternative may provide a shorter "protection" period, and the risk to SNYLF may occur over a longer duration than Alternative 1 would have allowed. Conversely, in wetter water years, this alternative could potentially provide "protection" during a longer proportion of the year (i.e. past July 31st). During these wetter water years, a closure enforced six weeks post snow-melt would allow more adequate time for the routes to dry, further limiting the likelihood that any SNYLF would be present or crushed by motorized vehicle use along the routes.	This alternative (a static closure through August 15th each year) would provide the greatest consistent duration of motorized vehicle-free disturbance for the SNYLF, but the shortest season of use for public motorized users. Although consistent, this Alternative's proposed closure could likely prohibit motorized use for durations either longer than necessary (in dry years) or not long enough (in wetter years).
Yosemite Toad	This alternative would, *in most years*, protect the YOTO during its most susceptible time. However, in higher water years, a July 31st opening of the routes would be too early and motorized vehicle use could potentially occur in conjunction with the most active YOTO emigration to and from the breeding sites resulting in a high risk of injury or mortality.	This alternative provides a more flexible, modified seasonal closure period, that would more thoroughly protect the YOTO while allowing public motorized vehicle use to occur annually. Correlating the seasonal closure with snowmelt would allow a longer motorized season of use in dry years (the current trend) and a shorter season of use in wetter years. Although Alternative 3 may allow the routes to open prior to July 31st in some years (low water/dry years), because the opening date would be based on snowmelt, the risk to the species would be mitigated appropriately. Additionally, this alternative would provide greater protection to YOTO in wetter years that would not be achieved with Alternative 1's proposed seasonal closure.	This alternative would provide the greatest, consistent, protection for the YOTO, but the shortest season of use for public motorized users. Based on the ecology of the toad, this alternative would (*in most years)* implement a much longer seasonal closure than would be necessary to successfully mitigate the risk of YOTO becoming injured or killed on the routes.

Lahontan Cutthroat Trout

Alternative 1, 3, and 4 (Action Alternatives):

Deer Valley 4wd Trail (19E01)

Re-opening the approximately 3.17 mile portion of the Deer Valley 4wd Trail (19E01) that is currently closed would increase motorized wheeled vehicle access to the area and allow travel directly through

potentially suitable Lahontan cutthroat trout stream habitat where route 19E01 crosses Blue Creek and Deer Creek. Lahontan cutthroat trout potentially present at these two crossings could be disturbed and startled causing them to quickly flee the area either upstream or downstream of the crossing point. Risks of this type of behavioral disturbance may include an interruption in spawning, a loss of energy, or relocation to areas less favorable for the Lahontan cutthroat trout. Although each of these potential affects may reduce the Lahontan cutthroat trout's ability to persist in the area, the probability that re-opening Deer Valley 4wd Trail (19E01) would cause measurable affects is exceptionally low since only Lahontan cutthroat trout stocked in Twin Lake would have access to Deer Creek and Blue Creek. Indirect effects to Lahontan cutthroat trout from re-opening the portion of the Deer Valley 4wd Trail (19E01) may include an increased risk of sedimentation or other water quality issues (i.e. turbidity) downstream of the stream crossings at Blue Creek and Deer Creek impacting spawning habitat.

The majority of the re-routing of Deer Valley 4wd Trail (19E01) will occur outside suitable Lahontan cutthroat trout habitat. The re-route effort is intended to move the trail away from areas of active stream bank erosion and to improve the angle of approach at the existing crossing at Deer Creek. Since none of the proposed work to re-route 19E01 would occur directly within the stream channel, there would be no direct effects to Lahontan cutthroat trout from implementing this action. Although, the construction of the new re-routed trail and improving the angle of the approach to Deer Creek may cause a temporary increase in sedimentation to Deer Creek as a result of ground disturbing activities, the reroute is expected to improve stream water quality after completion. An improvement in stream water quality is expected to be measurable within 1-year (season) post-implementation.

The approaches to Deer Creek would be hardened at Meadow 09N83-2 by adding large cobble and boulders (8-16" diameter) and better define the crossing with boulders to limit the width of the crossing on both sides of Deer Creek. Lahontan cutthroat trout potentially present at or near this crossing could be disturbed during implementation and the placement of the rock material. Disturbance would manifest as a short-term modification in behavior (i.e. fleeing to refuge, or localized abandonment). Some sedimentation from turbid water may occur in the localized area during the movement and placement of the large rock materials. A majority of the rock will be imported from the Clover Valley sediment field therefore, ground disturbance near the stream should be minimal and overall water quality in Deer Creek is expected to be improved after the approach hardenings are completed.

Stream banks impacted by past off-trail vehicle travel would be restored at three locations along Deer Creek and one location along Blue Creek. Techniques used to restore these sites would include seeding, willow cutting planting, and sod plug transplantation. Since none of the proposed work to restore these stream banks would occur directly within the stream channel, no Lahontan cutthroat trout injury or mortality is expected to occur as a result of this action.

Similar to the other actions proposed, the presence of crews along the stream bank during implementation could cause a temporary behavioral disturbance to present Lahontan cutthroat trout (i.e. fleeing to refuge or local abandonment). Since the scope of implementing the stream bank restoration is minor, disturbance would be temporary and would not cause a lasting effect on Lahontan cutthroat trout behavior or persistence in the area. Furthermore, these restorative actions should result in bank stabilization and subsequently reduce the potential that future erosion and sedimentation would occur; indirectly improving the future water quality and stream condition in Deer Creek and Blue Creek.

Blue Lakes/Meadow Lake Road (9N01)

Re-opening the currently closed approximately 1.0 mile portion of 09N01 would increase motorized wheeled vehicle access to the area and allow travel in close proximity to potentially suitable Lahontan cutthroat trout stream habitat. Contrary to route 19E01, there are no wet crossings along route 09N01. Route 09N01 contains numerous culverts allowing travel above the stream course and not through it. The risk that Lahontan cutthroat trout located within the stream below or adjacent to the road that could be disturbed is low. Nonetheless, the presence of users in the area and noise could potentially cause a reaction in any trout present in the area, causing them to retreat either upstream or downstream of where the disturbance occurred. Risks of this type of behavioral disturbance may include an interruption in spawning, a loss of energy, or relocation to areas less favorable for the Lahontan cutthroat trout. Indirect effects to Lahontan cutthroat trout from re-opening the Blue Lakes/Meadow Lake Road (09N01) may include an increased risk of sedimentation or other water quality issues (i.e. turbidity) in Meadow Creek. Sedimentation could reduce the habitat suitability for Lahontan cutthroat trout. Lahontan cutthroat trout typically seek out sediment-free gravel substrate in riffles and pool crests to spawn.

Proposed road maintenance activities are expected to improve the existing condition of the meadows and streams along route 09N01. These actions would greatly improve or remediate the currently occurring road runoff, which is resulting in sedimentation in the streams adjacent to the route. Actions occurring within a few feet of the edge of the road prism (i.e. re-grading, rolling dip repairs, and graveling) would not directly affect the stream courses, Lahontan cutthroat trout, or their potential habitat. Actions associated with culvert repair or installation may however, affect Lahontan cutthroat trout. Culvert maintenance occurring at crossings of Meadow Creek may disturb Lahontan cutthroat trout present at the time of implementation and cause increased stream turbidity or sedimentation downstream. Any culvert work occurring at the other ephemeral or intermittent stream crossings along route 09N01 may also add to stream turbidity and sedimentation within Meadow Creek because each of these streams flow into Meadow Creek. Despite these potential effects, the functionality of the culverts and subsequently stream condition would be improved after completion of the work. Therefore implementation of the proposed culvert maintenance is expected to improve Lahontan cutthroat trout habitat.

Hydrology

A Hydrology Report (Markman, 2015) was prepared to for the Deer Valley 4wd Trail Meadow Restoration and Blue Lakes/Meadow Lake Road Maintenance Project The following discussion summarizes effects to hydrologic resources in the project area.

Alternative 2 (No Action Alternative): Under the no action alternative, the Blue Lakes/Meadow Lake Road (09N01) would not be brought into compliance with Standard & Guideline #100. In addition, it is likely that additional degradation of the meadows that are crossed by or bordered by road 09N01 would occur for the following reasons:

- Excessive runoff and sediment from road 09N01 would continue to reach meadows that are crossed or adjacent to the road. Over a period of time, this would likely cause a larger portion of those meadows to become drier and have less meadow vegetation.
- The culverts that are impeding the movement of surface water and ground water through the meadows would not be improved. For example, water would continue to be impounded behind

culverts that are currently plugged or partially plugged or too small in diameter – this is water that would flow into the meadow down-gradient of the road.

The amount of sediment from OHV use that is reaching Deer Creek at Meadow 09N83-2 would not be reduced for several reasons:

- Sediment from Deer Valley 4wd Trail (19E01) would continue to erode into Deer Creek where the trail crosses the stream at Meadow 09N83-2. This is because the short segment of the trail adjacent to each side of the stream (i.e. the "approaches") would not be covered with rock or other materials that reduce erosion and the delivery of sediment into the stream.
- Sediment from the 250 ft. long segment of the Deer Valley 4wd Trail (19E01) that is less than 30 feet from Deer Creek would continue to erode into the stream. This is because the re-routing of this segment of the trail away from the stream, as well as the restoration of the 250 ft. long road segment, would not occur.
- Several locations where the streambanks of Deer Creek (at Meadow 09N83-2) are denuded and eroding as a result of past OHV use would likely continue to erode. This is because the planting of vegetation and/or sod plugs on those streambanks would not occur.

Erosion would not be reduced at several locations on Deer Creek (at Meadow 09N83-2) and Blue Creek (at Meadow 09N83-1) where past OHV use has resulted in the erosion of stream banks. This is because the planting of vegetation and/or sod plugs on those streambanks would not occur.

Alternative 1, 3, and 4 (Action Alternatives): The segment of the Blue Lakes/Meadow Lake Road (09N01) west of Twin Lake would be brought into compliance with Standard & Guideline #100 upon implementation of the proposed repairs. Specific repairs to the Blue Lakes/Meadow Lake Road (09N01) expected to bring the road into compliance with S&G 100 are described below in Table 2. In the long-term, these actions would likely improve the condition of the meadows that are crossed or bordered by this road for the following reasons:

- Excessive runoff and sediment from the Blue Lakes/Meadow Lake Road (09N01) that currently reaches the meadows would be greatly reduced. This would prevent additional drying out of the meadows, and promote the growth of vegetation that is typical of wet meadows.
- The culverts that are impeding the movement of surface water and ground water through the meadows would be repaired. This means that surface water and ground water would be able to move more freely through the meadow than is occurring at the present time, and the portions of the meadows downslope of the road should become wetter.

Along the Deer Valley 4wd Trail, the amount of sediment from OHV use that is reaching Deer Creek at Meadow 09N83-2 would be reduced for the following reasons:

- The short segment of the Deer Valley 4wd Trail (19E01) adjacent to each side of the stream (where the trail crosses the stream) would be covered with rock or other materials. This would reduce the delivery of sediment into the stream from the trail approaches to the stream. It should be noted, however, that fine-grained sediment contributed to the stream from vehicles driving on the bottom of the stream channel (for a distance of approximately 30 to 50 feet at low streamflows) would still occur.
- Sediment from the 250 ft. long segment of the Deer Valley 4wd Trail (19E01) that is less than 30 feet from Deer Creek would no longer reach the stream. This is because this segment of the trail

would be re-routed away from the stream, and restoration of the abandoned road segment would occur.

- Several locations where the streambanks of Deer Creek are eroding as a result of past OHV use would be rehabilitated by planting vegetation and/or sod plugs on those streambanks.
- The crossing of the Deer Creek by the Deer Valley 4wd Trail (19E01) would be delineated with boulders. This should prevent the crossing from becoming wider.

As a result of the above items, the plume of sediment in Deer Creek at Meadow 09N83-2 that is generated when vehicles cross the stream should be shorter in length and the turbidity values of that segment of the stream should be less elevated.

Erosion would be reduced at several locations on Deer Creek (at Meadow 09N83-2) and Blue Creek (at Meadow 09N83-1) where past OHV use has resulted in the erosion of streambanks. This is because the planting of vegetation and/or sod plugs on those streambanks would occur.

Ground disturbance would occur in a small portion of a number of meadows and their associated Riparian Conservation Areas (RCAs).

- Less than 10 percent of each meadow and associated RCA crossed or bordered by the Blue Lakes/Meadow Lake Road (09N01) would be disturbed. This is because the repairs to the road would be confined to the surface of the road and a discrete number of small areas immediately adjacent to the road. The width of the road is approximately 15 feet, and the discrete small areas immediately adjacent to the road generally would extend less than 20 feet from the edge of the road.
- Less than 2 percent of Meadow 09N83-2 and its associated RCA would be disturbed. This is because the meadow and RCA is over 20 acres in size and the proposed activities in these features total less than 0.4 acres.

Table 2. Repairs to the Blue Lakes/Meadow Lake Road (09N01) that would occur under Alternatives 1, 3, and 4.[1,2,3]

Point	UTM coord.[4]	Existing Condition	Repairs to road 09N01	How repairs meet Standard & Guideline #100
2	0243369 4277694	Runoff and sediment from a 400 ft. long segment of road 09N01 is reaching a narrow meadow on the south side of the road - the primary rill in the road is nearly 400 feet in length and up to 6 inches in depth. The resulting deposition of sediment from the road into the meadow has caused a portion of the meadow to become drier.	Construction of 2 or 3 rolling dips in the 400 long road segment upslope of the meadow.	The rolling dips will divert most of the runoff and sediment from the road into the forest before the runoff and sediment reaches the meadow. This will greatly reduce the drying out of the meadow as a result of sediment from the road being delivered into the meadow.
6	0243206 4277637	The culvert underneath the road is approximately 1 ft. in diameter. As a result, the movement of surface water through the meadow is impeded, particularly during higher streamflows. A small amount of runoff and sediment from the road 09N01 is reaching a stream and a meadow adjacent to the stream. This may contribute to a portion of the meadow being less wet.	Replace the existing culvert with a culvert that will pass flow and debris from the 100-year precipitation event. Raise the height of the road surface for a distance of approximately 150-200 feet.	Most of the surface flow will be able to pass through the culvert. This will allow more surface water to reach the meadow down-gradient of the road. Most of the runoff and sediment from the road will flow away from the stream and adjacent meadow.

7	0243109 4277564	Runoff and sediment from road 09N01 is reaching a meadow. The resulting deposition of sediment has caused a portion of the meadow to become drier.	Raise the height of the road surface for a distance of approximately 150-200 feet. Replace the existing culvert (if needed) with a culvert that will pass flow from the 100-year precipitation event.	Most of the runoff and sediment from the road will flow away from the stream and adjacent meadow. This will greatly reduce the drying out of the meadow contributed by sediment from the road into the meadow.
8	0242913 4277481	The culvert underneath the road is approximately 1 ft. in diameter and the inlet is almost completely plugged with sediment. As a result, much of the surface water above the road cannot reach the meadow below the road. There is a 2 ft. vertical drop at the outlet of the culvert - this is causing erosion of the stream channel. A small amount of runoff and sediment from road 09N01 is reaching a stream and a meadow adjacent to the stream. The resulting deposition of sediment has caused a portion of the meadow to become drier.	Replace the existing culvert with a culvert that will pass flow from the 100-year precipitation event. Place riprap at the outlet of the culvert. Raise the height of the road surface for a distance of approximately 100-150 feet.	Most of the surface flow will be able to pass through the culvert. This will allow more surface water to reach the meadow below the road. Most of the runoff and sediment from the road will flow away from the stream and adjacent meadow. This will greatly reduce the drying out of the meadow as a result of sediment from the road into the meadow.

[1] Repairs to the Blue Lakes/Meadow Lake Road (09N01) at Points 2, 6, 7, and 8 were developed by Tim Merten (Engineer) and Steve Markman (Hydrologist) in order to meet S&G #100 with regard to meadows. Other points (1, 3, 4, 9, etc.) relate to locations where notes were made that do not relate to Standard & Guideline #100 with regard to meadows.

[2] Standard & Guideline #100 states*: "Maintain and restore the hydrologic connectivity of streams, meadows, wetlands, and other special aquatic features by identifying roads and trails that intercept, divert, or disrupt natural surface and subsurface water flow paths. Implement corrective actions where necessary to restore connectivity."*

[3] The methodology for evaluating compliance with Standard & Guideline #100 is described in Appendix A of the Hydrology report.

[4] UTM NAD 83 zone 11.

Recreation

A Recreation Report (Shufelt, 2015) was prepared to for the Deer Valley 4wd Trail Meadow Restoration and Blue Lakes/Meadow Lake Road Maintenance Project. The following discussion summarizes effects to Recreation opportunities in the project area.

Alternative 2 (No Action): Under the No Action Alternative, Blue Lakes/Meadow Lake Road (9N01) and Deer Valley 4wd Trail (19E01) would continue to be inaccessible to recreationists and public wheeled motor vehicle use. Day use and dispersed camping opportunities at Meadow Lake would be lost under this alternative.

The No Action Alternative would result in a significant decrease of 4wd opportunities on the Amador District especially high elevation opportunities for motorcycle and ATV users. In the result of a full closure, it is assumed that displaced visitors will choose to recreate on lower elevation 4wd trails available on the District. Overall, decreasing high country motorized opportunities would fail to meet the demands of the public. Because of the remoteness of both 9N01 and 19E01 there is some potential that illegal use of both routes would continue to occur despite continued efforts to enforce the current closure prescribed by the TM SEIS ROD.

Alternative 1 (Proposed Action): A seasonal closure from January 1st to July 31st has the potential to impact recreation experiences and dispersed campsite condition by limiting the number of days the trail is open for legal public wheeled motorized vehicle use. This is expected to lead to crowding along the Deer Valley 4wd Trail (19E01) since visitation (# of vehicles per year) is not expected to change from levels observed prior to the temporary closure. The concentrated use has the potential to negatively impact

recreationists as visitors would experience overcrowding and visitor conflicts on high-use weekends both along Deer Valley 4wd Trail (19E01) and other OHV trails in the area. Under the proposed action the trail is expected to be open to motorized wheeled vehicles an average of 93 days a season (dependent on when the first substantial snow event closes the trail for the season). This equates to a 33 percent reduction in available days for trail use (assuming June 15th to November 1 as typical period of seasonal use), and an estimated 40 percent increase in number of vehicles accessing Deer Valley 4wd Trail (19E01) per week during the open season (relative to use prior to the SEIS closure). While increased recreation pressure is expected under this alternative, use on 19E01 would still be managed under the maximum allowable campsites per acre as specified under the Roaded Natural Recreation Opportunity Spectrum (ROS) classification listed in the ENF LRMP (1989) and applicable restrictions for wheeled motor vehicles travel described in the ENF Travel Management EIS. The proposed seasonal closure would have minor impacts to recreation opportunities along the Blue Lakes/Meadow Lake Road (9N01) as Meadow Lake would be inaccessible during the proposed seasonal closure. Recreationist seeking day use and camping opportunities at Meadow Lake would be the most impacted during the closure.

Alternative 3 (Modified Seasonal Closure): A seasonal closure determined by snowmelt would result in variable start dates for vehicle access on the Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (9N01). Compared to pre-SEIS use levels, it is expected that wheeled motor vehicles could travel on 9N01 and 19E01 approximately six weeks later than allowed pre-SEIS. This would likely result in increased vehicle concentration on the trail as a direct result of reduced opportunities for OHV use during the shorter season. Depending on the snow accumulation, use of the route has the potential to increase from 10-55% during a given week under Alternative 3 compared to pre-SEIS estimated levels. This would increase vehicle use to an average of 94 to 132 vehicles a week on the Deer Valley 4wd Trail.

Compared to the proposed action and Alternative 4; the modified seasonal closure (Alternative 3) could provide for the earliest or latest start date for trail use depending on the snow accumulation during the previous winter. Based on past data at the Blue Lakes Snow Gauge, the average date the trail would be open is July 18, but could be as early as June 24 or as late as August 20th. In high snow accumulation years the trail would be open much later than the proposed action (July 31st) and would have a similar impact to recreation opportunities as described for Alternative 4. In low snow accumulation years, Alternative 3 would allow wheeled motor vehicles access to Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road nearly six weeks earlier than the Proposed Action. While impacts from Alternative 3 for recreation opportunities will be variable depending on snow levels; this alternative, in general would provide for the greatest opportunities for recreation of the three action alternatives because the routes would be open much earlier during low snow years than the Proposed Action or Alternative 4, and thirteen days earlier than the proposed action during average snow years. The variable seasonal closure on the Blue Lakes/Meadow Lake Road (9N01) would also have minor impacts to recreation opportunities along 9N01 as Meadow Lake would be inaccessible during a closure. Recreationist seeking day use and camping opportunities at Meadow Lake would be the most impacted during the closure but compared to the proposed action recreationists could potentially access Meadow Lake earlier in the season in low snow accumulation years.

Alternative 4 (Extended Seasonal Closure): Alternative 4 is expected to have the highest impact on recreation opportunities and experiences and dispersed campsite conditions because Deer Valley 4wd Trail (19E01) would be consistently closed for the longest period during the season of use. Effects to recreation

would be similar in nature as described for the proposed action (i.e. concentrated use, impacts to dispersed recreation sites, less available trail days/season, impact to other trails on the district) but since the trail would be closed for an additional two weeks, impacts to recreation experience would be intensified relative to the proposed action. OHV use within the project area has the potential to increase up to 50% above estimated use prior to the Travel Management SEIS closure, increasing vehicle use to an average of 128 vehicles a week on the Deer Valley 4wd Trail (19E01). The August 15th seasonal closure would also have the greatest impact to recreation opportunities along Blue Lakes/Meadow Lake Road (9N01), as compared with the proposed action and Alternative 4, as Meadow Lake would be consistently inaccessible for the longest period during the season. Recreationist seeking day use and camping opportunities at Meadow Lake would be the most impacted during the closure, although in some high snow accumulation years, Alternative 3 would close 9N01 to public wheeled motorized vehicles past August 15th.

Table 3. Comparison of estimated available trail days and expected intensity for Deer Valley Trail for the proposed action, Alt 3, and Alt 4.

	snow accumulation		
	Low	**average**	**high**
Pre-SEIS trail and road use			
start date	6/1	6/15	7/4
Available trail days (assuming 11/01 end of season)	153	139	120
intensity (avg. riders/week[1])	85 riders/week		
Proposed action			
start date	7/31		
Available trail days (assuming 11/01 end of season)	93		
intensity (avg. riders/week[1])	119 (40% increase pre-SEIS)		
Alt 3			
start date[2]	6/24	7/18	8/20
Available trail days (assuming 11/01 end of season)	130	106	73
intensity (avg. riders/week[1])	94 (10% increase pre-SEIS)	113 (33% increase pre-SEIS)	132 (55% increase pre-SEIS)
Alt 4			
start date	8/15/2015		
Available trail days (assuming 11/01 end of season)	78		
intensity (avg. riders/week[1])	128 (50% increase pre-SEIS)		

[1]Average riders/week is based on estimates from Amador District Staff familiar with trail usage (Stroude, 2015). Assumed average pre-SEIS trail usage consisted of 30 OHVs on weekend days and an average of two to five vehicles on week days. Percent increase above pre-SEIS levels are based on recreation staff's professional judgment of recreationist response to altering available trail days under Alt 1, 3, and 4.
[2] Based on past data from the Blue Lakes Snow Sensor Station (2005-2014)

Botanical Resources

A Biological Evaluation/Biological Assessment (Brown, 2015) for plant species was prepared to document the potential effects to R5 Forest Service (FS) sensitive species and federally listed threatened, endangered, or proposed species and their designated or proposed critical habitat. In addition, noxious weed risk assessment and watch list plant report was prepared to analyze the effects on watch list plant taxa, special interest plant communities and other botanical resources. There are no R5 sensitive, Threatened/Endangered, watch list, or high priority invasive plant species within the project area. The following discussion summarizes potential effects to botanical resources:

Alternative 2 (No Action): Under Alternative 2, no repair work would be implemented along the Deer Valley 4wd Trail (19E01) or Blue Lakes/Meadow Lake Road (9N01), and the route would remain closed to public motor vehicle use. Any potential impacts to undetected Forest Service sensitive plant species that may occur in the proposed project area would be avoided without the proposed trail reroute, road maintenance, and other meadow restoration actions. Since portions of the trail would no longer be open to public motor vehicle use, there would a partial reduction in potential invasive species introduction due to exclusion of public vehicle traffic. However, continued use of the trail by hikers and cyclists could vector invasive species along both routes. There would be some recovery of native vegetation along both routes, but since the routes would remain accessible to non-motorized recreationist it is likely to continue to have limited impacts on meadow vegetation and serve as a potential corridor for invasive species to establish and spread.
Alternative 1, 3, 4 (Action Alternatives): Negative effects of the proposed project are not expected for Forest Service sensitive or federally listed plants from any of the action alternatives (Alt 1, 3, 4) since populations have not been found in the project area. Proposed action items including, stream crossing delineation at Deer Valley (meadow 09N83-2), streambank restoration (meadow 09N83-2 and 9N83-1), trail reroute (meadow 09N83-2), and road maintenance activities (meadow 9N01-All) are expected to improve meadow vegetation in the project area. If new occurrences are found during project implementation, the project botanist would be contacted and necessary mitigations developed to limit impacts to newly discovered sensitive/watchlist plant species. There is a slight risk of introducing invasive species during project activities via contaminated materials, equipment, and vehicles used for the proposed project. Design features included in the project will limit the potential for invasive species introduction.

Terrestrial Wildlife

A Biological Evaluation/Biological Assessment (Loffland, 2015) for terrestrial wildlife species was prepared to document potential effects to R5 Forest Service (FS) sensitive species and federally listed threatened, endangered, or proposed terrestrial species and their designated or proposed critical habitat. Great gray owl and western bumble bee have the potential to occur within the project area but have not been detected. Both Northern goshawk and American marten occur in the general project area with Northern goshawk occurring along the Deer Valley 4wd trail (19E01). There are no federally listed terrestrial wildlife species known to occur or have potential habitat within the project area. The following discussion summarizes effects to these species:

Alternative 2 (No Action): Under the No Action alternative, the portions of the Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (09N01) that are currently closed would remain closed to public motor vehicle use and no of the other corrective or restoration actions would be implemented. The No Action alternative would have no effects to northern goshawk, Great gray owl, American marten, and Western bumble bee.

Alternative 1, 3, and 4 (Action Alternatives): The project will not affect any threatened or endangered terrestrial wildlife species. It has been determined that implementation of any of the three action alternatives would not likely result in a trend toward Federal listing or loss of species viability for any sensitive wildlife species. Although there may be minor disturbance during project implementation for northern goshawk, great gray owl, American marten, and western bumble bee; populations are not anticipated to be negatively impacted. Design criteria common to all action alternatives would limit disturbance to the known Goshawk Protected Activity Center (PAC) found along the Deer Valley 4wd trail (19E01) during project implementation.

The proposed seasonal closure for aquatic species described under any of the three alternatives would reduce the potential disturbance to FS sensitive wildlife species in the project area, varying on the level of snow accumulation. In dry, low snow accumulation years, Alternative 3 would be less protective than the proposed action (Alternative 1), and in wet, high snow years, Alternative 3 would be more protective than Alternative 1. Alternative 4 would be more likely to reduce potential disturbance than Alternative 1 and Alternative 3 in most years, except in very wet years where Alternative 3 would reduce the potential for disturbance for a longer period of time.

Effects Relative to Substantial Issues

Issue 1: A Seasonal Closure from January 1 to July 31 would impact recreation opportunities along Deer Valley and Blue Lakes/Meadow Lake Road. **Key Indicator measures:** Average number of days 19E01 and 9N01 would be open to public wheeled motorized vehicle use and expected crowding along routes.

> **No Action (Alternative 2)-** Under the no action alternative, both Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road would continue to be closed to wheeled motor vehicles. Since both routes would be closed to motorized vehicles there would be no crowding impacts to recreation experience along 19E01 and 9N01.

Proposed Action (Alternative 1)- Under the Proposed Action, the expected number of visitors per season for the Deer Valley 4wd Trail (19E01) is expected to be similar as it was before the temporary closure. However, the displaced use from June through July 31st would be concentrated into a shorter season. This is expected to result in up to 119 vehicles/week along the Deer Valley 4wd Trail as compared to the estimated 85 vehicles/week prior to the closure (table 3). The increased use has the potential to negatively impact recreationist as visitors would experience overcrowding and visitor conflicts on high-use weekends. Under the proposed action, the trail is expected to be open to motorized wheeled vehicles for an average of 93 days a season, depending on when the first substantial snow event closes the trail for the season.

A seasonal closure from January 1st to July 31st has the potential to impact recreation opportunities offered along the Blue Lakes/Meadow Lake Road (9N01) as Meadow Lake will be inaccessible during the closure. For Blue Lakes/Meadow Lake Road (9N01), the average number of days per season the road would be open to wheeled motor vehicles would be the same as described for Deer Valley 4wd Trail. Recreationists seeking day use and camping opportunities at Meadow Lake will be the most impacted during the closure, but concentrated vehicle use is not expected to be a concern for the road given the current levels of recreation occurring in the area.

Alternative 3- A seasonal closure determined by snowmelt would result in variable start dates for vehicle access on the Deer Valley 4wd Trail. Compared to pre-SEIS trail use levels, it is expected that wheeled motor vehicles could travel on both routes approximately six weeks later than would have been allowed prior to the Travel Management SEIS (assuming OHV usage started after snowmelt). This would likely result in some increase in vehicle concentration on the trail as a direct result of reduced opportunities for OHV use during the shorter season. Depending on the snow accumulation, use of the route per week has the potential to increase from 10-55% under Alternative 3 as compared to pre-SEIS estimated levels (Table 3). This would increase vehicle use to an average of 94 to 132 vehicles a week on the Deer Valley 4wd Trail. Under Alternative 3, the trail is expected to be open to motorized wheeled vehicles 73 to 130 days a season dependent on when the seasonal closure is lifted after snow melt, and when the first substantial snow event closes the trail for the season. Compared to the proposed action and Alternative 4; Alternative 3 could provide for the earliest or latest start date for trail use depending on the snow accumulation during the previous winter. Based on past data at the Blue Lakes Snow Gauge, the average date the trail would be open is July 18, but could be as early as June 24 or as late as August 20th. In high snow accumulation years, the trail would be open much later than the proposed action (July 31st) and would have a similar impact to recreation opportunities as described for Alternative 4. In low snow accumulation years, Alternative 3 would allow wheeled motor vehicles access to Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road nearly six weeks earlier than the Proposed Action. While impacts from Alternative 3 for recreation opportunities will be variable depending on snow levels; in general this alternative would provide for the greatest opportunities for recreation of the three action alternatives because the routes would be open much earlier during low snow years than the proposed action or Alternative 4, and nine days earlier than the proposed action during average snow years. For Blue Lakes Road (9N01), the average number of days per season the road would be open to wheeled motor vehicles would be the same as described for Deer Valley 4wd Trail (19E01). Recreationists seeking day use and camping opportunities at Meadow Lake would be the most impacted during the

closure, but concentrated vehicle use is not expected to be a concern for the road given current levels of recreation occurring in the area.

Alternative 4- A seasonal closure from January 1st to August 15th would concentrate overall recreation use, even more than the Proposed Action, on the Deer Valley 4wd Trail during the open season. Under Alternative 4, vehicle use could increase to an average of 128 vehicles a week as a result of displaced use (June through August 15th) concentrating into a shorter season (August 16 to first substantial snow event, generally around November 1). Under Alternative 4, the trail is expected to be open to motorized wheeled vehicles an average of 78 days per season depending on when the first substantial snow event closes the trail for the season (Table 3).

For Blue Lakes/Meadow Lake Road (9N01), the average number of days per season the road would be open to wheeled motor vehicles would be the same as described for Deer Valley 4wd Trail. Recreationists seeking day use and camping opportunities at Meadow Lake will be the most impacted during closure, but concentrated vehicle use is not expected to be a concern for the road given current levels of recreation occurring in the area.

Issue 2: A Seasonal Closure from January 1 to July 31 would not adequately prevent impacts to listed amphibian species on the portion of routes closed under ENF TM SEIS. **Key Indicator measure:** Potential for impacts to listed amphibian species from wheeled motor vehicles on the portion of routes closed under the ENF travel management SEIS.

No Action (Alternative 2) - Currently the Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (9N01) are closed to public wheeled motorized vehicles and would remain closed as described in the 2013 Eldorado National Forest Travel Management SEIS. The No Action Alternative would have the lowest risk for impacts from vehicle travel for Yosemite toad and Sierra Nevada yellow-legged frog since direct and indirect impacts (disturbing, harming, or killing) would only occur if vehicles illegally travel on the routes.

Proposed Action (Alternative 1) - This alternative would, in most years, protect the Yosemite toad during its most susceptible time. However, in higher water years, a July 31st opening of the routes could potentially occur in conjunction with the most active Yosemite toad emigration to and from the breeding sites resulting in a high risk of injury or mortality.

For Sierra Nevada yellow-legged frog, the proposed action would limit the duration of the year that individual Sierra Nevada yellow-legged frogs would be at risk of disturbance (at stream crossings) or crushing (in the upland habitat) compared to pre-closure use on both routes. However, since Sierra Nevada yellow-legged frogs have such a close affinity to water, the likelihood of disturbance to or crushing individuals is very low and the difference between the effectiveness of the three proposed seasonal closures would be minimal for Sierra Nevada yellow-legged frog.

Alternative 3- Alternative 3 provides a more flexible, modified seasonal closure period that would more thoroughly protect Yosemite toads compared to the other action alternatives. The intent of

implementing a seasonal closure is to limit impacts to Yosemite toads from public wheeled motor vehicles use and minimize the overlap between motorized vehicle use and Yosemite toad habitat utilization in the vicinity of the Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (9N01). Because the opening date would be based on snowmelt, Alternative 3 may allow the routes to open prior to July 31st in some years (low water/dry years), however the risk to the species would be mitigated appropriately as it is based on the site conditions. Additionally, this alternative would provide greater protection to Yosemite toad in wetter years that would not be achieved with the seasonal closure in the proposed action alternative.

Alternative 3 would provide similar benefits as described for the proposed action in providing a limited duration of the year in which Sierra Nevada yellow-legged frogs would be at risk of disturbance (at stream crossings) or crushing (in the upland habitat). However, in drier, low water years, this alternative may provide a shorter "protection" period, and the risk to frogs may occur over a longer duration than Alternative 1 (proposed action) would have allowed. Conversely, in wetter water years, this alternative could potentially provide "protection" during a longer proportion of the year (i.e. past July 31st). During these wetter water years, a closure enforced six weeks post snow-melt would allow more adequate time for the routes to dry, further limiting the likelihood that any Sierra Nevada yellow-legged frogs would be present or crushed by motorized vehicle use along the routes.

Alternative 4- Alternative 4 would provide the greatest, consistent, protection for the Yosemite toad. Based on the ecology of the Yosemite toad, this alternative would (in most years) implement a much longer seasonal closure than would be necessary to successfully mitigate the risk of Yosemite toads becoming injured or killed on the routes.

This alternative (a static closure through August 15th each year) would provide the greatest consistent duration of motorized vehicle-free disturbance for the Sierra Nevada yellow-legged frog. Although predictable, this Alternative's proposed closure could likely prohibit motorized use for durations either longer than necessary (in dry years) or not long enough (in wetter years).

Issue 3: Vehicles could travel on routes during seasonal closure without a physical closure. **Key Indicator Measure:** Potential for vehicles to illegally travel on routes during seasonal closure.

No Action (Alternative 2) - Under the no action alternative, both the Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (9N01) would remain closed to wheeled motor vehicles. Temporary physical closures would be installed on both 19E01 and 9N01 (as required by the ENF Travel Management SEIS) and the forest would continue to rely on public outreach, patrolling, signage, volunteer enforcement, and citations of individuals found in violation of the continued closure. Given the remote location of both routes it is expected that some illegal use would likely continue.

Proposed Action (Alternative 1) - The proposed action would rely on public outreach, patrolling, signage, volunteer enforcement, and citations of vehicles violating the seasonal closure from January

1 to July 31st. Since no physical closures would be installed, some illegal use is expected given the remote locations of both routes.

Alternative 3 & 4 - Compared to the proposed action, Alternative 3 and 4 would have a much lower potential for vehicles to illegally access Blue Lakes/Meadow Lake Road (9N01) during the seasonal closure due to the proposed gate installation west of Twin Lakes. For the Deer Valley 4wd Trail (19E01), Alternatives 3 & 4 would not include gates at either end of the trail segment currently closed by the ENF Travel Management SEIS and thus would have the same potential for vehicles to access the trail during the proposed seasonal closure as the proposed action. After consideration, it was determined that a suitable gate location was not available on the southern portion of the trail due to the open nature of the area. The Forest is aware of ongoing illegal access along both routes since the 2013 TM SEIS decision closed portions of Deer Valley 4wd Trail (19E01) and Blue Lakes/Meadow Lake Road (9N01) and would explore additional opportunities and enforcement measures to increase the efficacy of the proposed seasonal closures under Alternatives 3 and 4 without the use of physical closures.

Effects Relative to Finding of No Significance (FONSI) Elements

In 1978, the Council on Environmental Quality published regulations for implementing the National Environmental Policy Act (NEPA). These regulations (40 CFR Parts 1500-1508) include a definition of "significant" as used in NEPA. The ten elements of this definition are critical to reducing paperwork through use of a finding of no significant impact (FONSI) when an action would not have a significant effect on the human environment, and is therefore exempt from requirements to prepare an environmental impact statement (EIS). Significance as used in NEPA requires consideration of the following ten intensity factors in the appropriate context for that factor.

(1) Beneficial and adverse impacts.

Mitigations and management requirements designed to reduce the potential for adverse impacts were incorporated into the proposed action and alternatives, including standards and guidelines outlined in the Eldorado National Forest LRMP (USDA Forest Service 1989), as amended by the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004), Best Management Practices, and project specific design criteria based on resource specialist knowledge and experience. These mitigations and management requirements would minimize or eliminate the potential for adverse impacts caused by the proposed project.

Effects determinations are summarized from supporting analysis in the discussion of environmental consequences by resource (EA pp. 9-21). All analyses prepared in support of this document considered both beneficial and adverse effects, but all effects determinations were made on the basis of only adverse effects. None of the potential adverse effects of this project would be significant, even when considered separately from the beneficial effects that occur in conjunction with those adverse effects.

(2) The degree to which the proposed action affects public health or safety.

No public health or safety impacts were identified for the proposed action items on Deer Valley 4wd Trail or Blue Lakes/Meadow Lake Road. The road maintenance along Blue Lakes/Meadow Lake Road would improve road condition allowing for vehicles to safely travel to the public access point for Meadow Lake.

(3) Unique characteristics of the geographic area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas

The Deer Valley 4wd Trail (19E01) follows a designated 600-foot wide corridor through the Mokelumne Wilderness and as such is within close proximity to the Wilderness boundary. The proposed project, including the trail reroute and meadow restoration, are not expected to impact the wilderness character. The reroute will move the trail 100 feet from its current alignment, but would not increase the potential for wheeled motor vehicles to access the Wilderness. Blue Lakes/Meadow Lake Road (9N01) is approximately 1,000 feet from Mokelumne Wilderness. There is little risk of vehicles accessing the Mokelumne Wilderness from the road.

The Deer Valley 4wd Trail (19E01) is located within the Raymond Peak Inventoried Roadless Area (IRA) (Category 1C-Road Construction or reconstruction is allowed by management prescription). The trail was in established use at the time the IRA was delineated and the proposed project is not expected to change the listed characteristics of the area. The proposed project is in compliance with the 2001 Roadless Area Conservation Rule, as the minor trail construction and tree removal would occur on a route designated and maintained as a FS system trail. The trail improvements and reroute are expected to reduce potential impacts of the route on meadows. The improvements will be designed to blend in with the surrounding landscape as much as possible. Restoration of the abandoned trail segment at Meadow 09N83-2 will lead to the re-establishment of native vegetation.

Both the Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road occur in close proximity to meadows and riparian areas and contain portions of Proposed Critical Habitat for the Sierra Nevada yellow-legged frog (Unit 2F) and Yosemite toad (Unit 1). The proposed meadow restoration items (Deer Valley 4wd Trail) and road maintenance (Blue Lakes/Meadow Lake Road) activities are expected to improve the condition of the meadows along both routes. For the Deer Valley 4wd Trail (19E01), meadow and riparian areas will be improved by: 1) delineating the trail crossing at Deer Creek to prevent widening of the trail in the meadow; 2) hardening trail approaches to Deer Creek; 3) completing a trail reroute of a 250 foot segment of trail out of the meadow and; 4) rehabilitating stream banks impacted by past OHV use. For Blue Lakes/Meadow Lake Road (9N01), the action alternatives would improve meadow condition by limiting sediment from reaching meadows adjacent to 9N01 and repairing culverts that are impeding the movement of surface and ground water through the meadows. Implementation of the projects Design Criteria, 2004 SNFPA standard and guidelines, and Best Management Practices (BMPs) would limit the level of impact occurring within the wetlands (meadows) and Proposed Critical Habitat. Furthermore, the proposed action and alternatives were developed to correct and restore areas (habitats) currently degraded as a result of past use. These proposed treatments would provide long-term benefits to wetland and lotic habitats both in, and downstream of, the project area (including those within the Proposed Critical Habitat units). The Project area does not contain, nor would it adversely affect, any Critical Aquatic Refuges (CAR).

Cultural resources along the Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road will be avoided during project implementation. The proposed project area is not in the proximity to any parklands, prime farmlands, wild and scenic rivers, or ecologically critical areas, therefore none would be impacted.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

No anticipated effects have been identified that are scientifically controversial. Road maintenance activities similar to those proposed on Blue Lakes/Meadow Lake Road have been shown to improve drainage and reduce sediment delivery from roads into riparian areas. The meadow restoration activities and trail reroute are well accepted methods to improve meadow conditions. Use of seasonal closures is commonly used by the Forest Service across the Sierras and can effectively limit vehicle travel when properly enforced.

Some disagreement about aspects of the proposed action and alternatives relative to the effects on aquatic species is expected; however, substantial scientific dispute with respect to the effects of the treatments described in the proposed action and the determinations made by the Aquatic Biologist are not expected. The proposed action and alternatives are consistent with all laws, regulations, and policy, including the Forest Service Manual, ENF Land and Resource Management Plan (USDA Forest Service 1989), as amended by the 2004 Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004), and the Programmatic Biological Opinion for the Sierra Nevada yellow-legged frog and Yosemite toad (USDI 2014). Also, issues related to impacts to Sierra Nevada yellow-legged frog and Yosemite toad raised during scoping were addressed and modifications were made to the proposed seasonal closures and provided in two additional alternatives (Alternatives 3 and 4) to help address these issues.

(5) Degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The proposed activities are routine in nature, have been implemented in the past under similar conditions, employ standard practices and protection measures, and possible effects are known. Management requirements minimize the chance of highly uncertain effects, or effects that involve unique or unknown risks.

The following items, along with past experiences indicate that the project does not involve uncertain, unique, or unknown risks for aquatic species:

- Implementation of a seasonal closure of routes 19E01 and 09N01 and prohibiting project implementation during the same seasonal closure would help minimize the risk of injury or mortality to Sierra Nevada yellow-legged frog and Yosemite toad by prohibiting recreational motorized vehicle use during the period of time Sierra Nevada yellow-legged frog and Yosemite toad are most likely to be traveling within the routes (during early season emigration to and from aquatic habitats).

-Limiting the amount equipment travels off of hardened road surfaces (outside the route footprint) or equipment crosses into aquatic habitat during restoration activities minimizes the risk of disturbance,

injury, and mortality to individual aquatic species and the risk of causing increased rates of sedimentation or turbidity within the meadow and stream habitats.

-Surveying for Sierra Nevada yellow-legged frog and Yosemite toad by qualified FS personnel just prior to the start of project treatments would minimize the risk of injury or mortality. Any Sierra Nevada yellow-legged frog and Yosemite toad found present in treatment areas would be dealt with according to the Terms and Conditions described in the Programmatic Biological Opinion (USDA 2014).

- Because of the relatively small amount of aquatic habitat affected, the project design criteria and application of FS standard and guidelines and BMPs, the project's proposed action and alternatives would all have minimal risk of negative effects to aquatic habitats, both during implementation and during future recreational uses.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Deer Valley 4wd Trail Meadow Restoration and Blue Lakes/Meadow Lake Road Maintenance Project represents a site-specific project that does not set precedence for future actions or present a decision in principle about future considerations. Any similar action must be evaluated through an appropriate site-specific environmental review and decision making process consistent with applicable law, regulation, policy, and land use plan guidance. Implementation of the Deer Valley 4wd Trail Meadow Restoration and Blue Lakes/Meadow Lake Road Maintenance Project will not set a precedent for future actions that may have significant effects, nor does it represent a decision in principle about a future consideration.

(7) Whether this action is related to other actions with individually insignificant but cumulatively significant impacts

A cumulative effects analysis was completed separately for each resource area and is discussed within the respective specialist reports. Specialists considered the effects of the proposed action along with the effects of past, present and reasonably foreseeable future actions (both private and public) to determine if any cumulatively significant effects may exist. The spatial and temporal boundaries for the cumulative effects analyses varied among resources. Each of the specialist's cumulative effects analyses, along with past experience, determined that implementation of the proposed action or alternatives would not result in significant adverse cumulative effects.

Aquatics: There is a small amount of suitable habitat for aquatic Threatened and Endangered species (Lahontan cutthroat trout, Sierra Nevada yellow-legged frog and Yosemite toad) that would be affected by the proposed project. However, the implementation of design criteria, FS S&Gs and BMPs would limit the potential effects of the proposed action and alternatives so that no significant contribution to cumulative effects for aquatic species is expected. Furthermore, the types of past, present, and reasonably foreseeable actions identified in the analysis area overlap very little in time and space with Lahontan cutthroat trout, Sierra Nevada yellow-legged frog and Yosemite toad habitat.

Hydrology: The analysis of cumulative watershed effects (CWE) considers all past, present, and likely future land disturbances in a given drainage area. In the Eldorado National Forest (ENF), the major potential cumulative watershed effect is the degradation of habitat for aquatic and riparian species. This can result when land disturbances - roads, timber harvest, wildfire, etc. - increase the amount of sediment delivered to aquatic features. In the ENF, the risk of the occurrence of CWE for each watershed (HUC 7 scale) is assigned to one of the following four categories: low, moderate, high, or very high. The assignment of the risk of CWE is based on a quantitative evaluation of the land disturbances in the watershed using the method of equivalent roaded acres (ERA).

The three watersheds that contain the Deer Valley 4wd Trail and Blue Lakes/Meadow Lake Road project area are currently at a low risk of CWE. This is because land disturbances in these watersheds are mostly confined to a relatively small number of roads, trails, campgrounds, dams, and associated parking areas.

None of the alternatives change the risk of cumulative watershed effects (CWE) in the three HUC 7 watersheds that contain the project area. This is because the amount of ground disturbance that would result from the Deer Valley 4wd Trail and /Blue Lakes/Meadow Lake Road Project – less 0.01 percent equivalent roaded acres - is negligible and far less than the 0.1 percent resolution of the ERA model at the HUC 7 watershed scale.

Botany: Cumulative effects from any of the three action alternatives are not expected for Forest Service sensitive plant species.

Wildlife: Cumulative effects are not expected for Forest Service sensitive terrestrial wildlife species from the three action alternatives.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

This project complies with Section 106 of the National Historic Preservation Act of 1966, as amended in accordance with provisions of the Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region (Region 5), the California State Historic Preservation Officer, the Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forest of the Pacific Southwest Region (Regional PA 2013). No adverse effects to historic property are expected from the project since resource protection measures will be used to protect, manage or maintain historic properties in a manner that avoids adverse effects.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

A Biological Assessment (BA) for Aquatic Species has been prepared and can be found in the project record. The proposed action and alternatives would ***not*** adversely affect Lahontan Cutthroat Trout, Sierra Nevada

yellow-legged frog or proposed Critical Habitat for the Sierra Nevada yellow-legged frog and Yosemite toad. It was determined that the proposed action may affect, but unlikely to adversely affect the Lahontan cutthroat trout or Sierra Nevada yellow-legged frog. For the Yosemite toad, it was determined that the proposed action and alternatives may affect and ***are*** likely to adversely affect the Yosemite toad. The degree to which the proposed actions my adversely affect the Yosemite toad is minor, small in scale, and is not expected to jeopardize the continued existence of the Yosemite toad because the actions proposed; 1) are routine in nature, 2) have been implemented in the past under similar conditions, 3) would directly overlap with a very small portion of suitable and Proposed Critical Habitat for Yosemite toad, 4) would employ standard practices (FS S&Gs and BMPs) and protection measures (design criteria), 5) have known possible effects, and 6) all but one specific action (the re-opening of routes 19E01 and 09N01) were included in the Programmatic Biological Opinion (USDI 2014).

A Biological Assessment/Evaluation for Botanical Resources has been prepared and is available for review in the project record. Layne's Butterweed (*Packera Layneae)* is the only federally listed plant species with potential habitat on the Eldorado NF (USFWS species list reviewed on August 6, 2015). This species is found on gabbro and serpentine soils below 3,000 feet, outside the range of the project area. There would be no effect to Layne's Butterweed (*Packera Layneae).*

A Biological Assessment/Evaluation for terrestrial wildlife species has been prepared and is available for review in the project record. Valley Elderberry Longhorn Beetle (*Desmocerus califronicus dimorphus*) is the only federally listed terrestrial wildlife species with potential habitat on the Eldorado NF (USFWS species list reviewed on January 13, 2015). This species does not occur above 3,000 feet, outside the range of the project area. There would be no effect to Valley Elderberry longhorn beetle.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

Alternative 1 (proposed action), 3, and 4 were developed in accordance with and, therefore, do not threaten to violate any Federal, State or local laws, or requirements for the protection of the environment. The proposed action and alternatives are consistent with the National Environmental Policy Act (NEPA), Endangered Species Act (ESA), National Historic Preservation Act (NHPA), Clean Water Act, Clean Air Act, and National Forest Management Act (NFMA). The proposed action is also consistent with the Eldorado National Forest Land and Resources Management Plan (1989), as amended by the Sierra Nevada Forest Plan Amendment (2004).

AGENCIES AND PERSONS CONSULTED

Alpine County Board of Supervisors

Washoe Tribe of Nevada and California

Bob Clark, Travel Management SEIS Appellant

Lawrence Calkins, Nevada Four Wheel Drive Association, Travel Management SEIS Appellant

Amy Granat, California Off-road Vehicle Association, Travel Management SEIS Appellant

Douglas Barr, Lake Tahoe Hi-Lo's, Travel Management SEIS Appellant

Karen Schambach, Center for Sierra Nevada Conservation, Travel Management SEIS Appellant

Joseph Sand, Travel Management SEIS Appellant

U.S. Fish and Wildlife Service, Sacramento Field Office

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INDEX OF APPENDICES

Appendix A – List of Persons Providing Scoping Comments

Commenter ID (#)	Name	Group	Date Received
1	Keith Hansen		11/18/2014
2	Mark Walker		11/18/2014
3	Craig Ervin		11/18/2014
4	Jim Cowan		11/18/2014
5	Jo Snyder		11/18/2014
6	Vidas Mickevicius		11/19/2014
7	Doug Barr	Lake Tahoe Hi-Lo's	11/19/2014
8	Loren Kaiser		11/19/2014
9	Mitch Hammond		11/19/2014
10	Alan Yordy		11/19/2014
11	David Kowalski		11/19/2014
12	Mike Brink		11/19/2014
13	Craig Lemon		11/20/2014
14	Matthew York		11/20/2014
15	Erik Holst	Trout Unlimited	12/9/2014
16	Michael Jumper		11/21/2014
17	James William		11/21/2014
18	Geoffrey Beasley		11/24/2014
19	Geoff Ho		11/25/2014
20	Shaun Harrington		11/26/2014
21	Nathan Holland		11/28/2014
22	Robert Jump		11/28/2014
23	Vince Brunasso		11/28/2014
24	Don Amador	Blue Ribbon Coalition	12/2/2014
25	Del Albright		12/2/2014
26	Bob Clark		12/2/2014
27	Rick Ferdon		12/2/2014
28	Denny Berry		12/2/2014
29	Paul Enstrom		12/2/2014
30	Jack Chapman		12/2/2014
31	Don Silvia		12/3/2014
32	Stacie Albright		12/3/2014
33	Glenn Reynolds		12/3/2014
34	Stu Wik		12/3/2014
35	Albert Llata		12/3/2014
36	Robin Baumgart		12/3/2014
37	Kyle Felker		12/3/2014
38	Jim Fulling		12/3/2014

Commenter ID (#)	Name	Group	Date Received
39	Erik Claus		12/3/2014
40	Kitten Moore		12/3/2014
41	Jeff Blewett	California Association of 4wd Clubs	12/4/2014
42	Donald Jardine	Alpine County Board of supervisors	12/3/2014
43	Amy Granat	California Off-road Vehicle Association (CORVA)	12/4/2014
44	Art Stine	Madhatters 4x4s	12/5/2014
45	Joe Sand		12/5/2014
46	Larry Caulkin	Nevada Four Wheel Drive Association	12/8/2014
47	Bob Sutton		12/10/2014
48	Karin Schambach and Lisa Belenky	Center for Sierra Nevada Conservation/ Center for Biological Diversity	12/12/2014
49	Rich Farrington	Amador Water Agency	12/13/2014

Appendix B: Summary of Actions under Alternative 1 (Proposed Action) and Applicable BMPs

	Actions that would occur under Alternatives 1, 3 and 4	How Standard &Guideline #100 would be met as a result of actions under Alternatives 1, 3, and 4	Applicable Best Management Practices (BMPs) with regard to Alternatives 1, 3, and 4[1]
Meadows 09N01-ALL	Repairs to road 09N01 (west of Twin Lake) would occur at four locations. Seasonal closure of road 09N01 – length of closure varies by alternative.	• Excessive runoff and sediment from road 09N01 that currently reaches several meadows would be greatly reduced • The culverts that are impeding the movement of surface water and ground water through the meadows would be repaired	<u>BMP 4.7.2 (Trail location and design)</u> ▪ Road 09N01 (west of Twin Lake) crosses or borders a complex of small meadows. A complete re-route of the road west of Twin Lake would also cross a number of meadows, as well as steep outcrops of granitic rocks. Figure 16 shows an aerial photograph of the landscape surrounding road 09N01 west of Twin Lake. <u>BMP 4.7.3 (Trail watercourse crossings)</u> ▪ Road 09N01 crosses several small stream channels. Improvements to these crossings are described under Column 2 and Table 3 of the hydrology report. <u>BMP 4.7.4 (Trail construction & reconstruction)</u> ▪ The segment of road 09N01 west of Twin Lake will be repaired so as to improve the drainage of the road and reduce impacts to meadows that are crossed or bordered by the road. The repairs are described in column 2 and Table 3 of the hydrology report. <u>BMP 4.7.5 (Monitoring)</u> The segment of road 09N01 west of Twin Lake will be monitored as described in the Eldorado National Forest Travel Management SEIS Settlement Agreement Monitoring Plan (2015).

Meadow 09N83-1	Meadow 09N83-2 was rated as meeting S&G #100 in July 2011. The meadow was re-evaluated in August 2014 and other concerns have resulted in the following proposed actions: • Several locations where the streambanks of Blue Creek are eroding as a result of past OHV use would be rehabilitated by planting vegetation and/or sod plugs on those streambanks. • Trail 19E01 at Meadow 09N83-1 would be closed seasonally – the length of closure varies by alternative.	BMP 4.7.2 (Trail location and design), BMP 4.7.3 (Trail watercourse crossings), and BMP 4.7.4 (Trail construction & reconstruction. Trail 19E01 crosses Blue Creek one time. Alternatives 1, 3, and 4 contain actions that would reduce the impacts of this crossing to Deer Creek. These actions are described in Column 2. BMP 4.7.5 (Monitoring) Monitoring will occur as described in the Eldorado National Forest Travel Management SEIS Settlement Agreement Monitoring Plan (2015).
Meadow 09N83-2	Meadow 09N83-2 was rated as not meeting S&G #100 in July 2011. The meadow was re-evaluated in August 2014 and found to be in compliance with S&G #100 – this re-evaluation is in Appendix A. However, other concerns that were noted with regard to the Deer Valley 4wd trail in Meadow 09N83-2 have resulted in the follow proposed actions: • The short segment of trail 19E01 adjacent to each side of the stream (where trail crosses the stream) would be covered with rock or other materials. • A 250 ft. long segment off trail 19E01 that is less than 30 feet from Deer Creek would be re-routed away from the stream, and restoration of the abandoned road segment would occur. • Several locations where the streambanks of Deer Creek are eroding as a result of past OHV use would be rehabilitated by planting vegetation and/or sod plugs on those streambanks. • The crossing of the Deer Creek by trail 19E01 would be delineated with boulders. • Trail 19E01 at Meadow 09N83-2 would be closed seasonally - the length of closure varies by alternative.	BMP 4.7.2 (Trail location and design), BMP 4.7.3 (Trail watercourse crossings), and BMP 4.7.4 (Trail construction & reconstruction. Trail 19E01 crosses Deer Creek one time. Alternative 1 (Proposed Action) contains actions that would reduce the impacts of this crossing to Deer Creek. These actions are described in Column 2, and an analysis of these actions has been previously described. BMP 4.7.5 (Monitoring) Monitoring will occur as described in the Eldorado National Forest Travel Management SEIS Settlement Agreement Monitoring Plan (2015).

[1] The complete text of all applicable BMPs can be found in the 2011 Water Quality Management Handbook (Region 5, USDA).

Appendix C: BO project checklist for listed aquatic species

Programmatic BO (USDI 2014);

Measure Type	Direction	Compliance
General	1a. Wheeled vehicles off designated routes, trails, and limited off-highway (OHV) use will be prohibited to reduce the risk of crushing, injuring, or disturbing individuals of the listed species (per S&G 69).	Cross-country (off-designated route) travel would not be permissible in the project area. Cross-country travel would be enforcement by FS officials. Areas along Route 19E01 where previous cross-country travel has been identified would be block and the stream crossing at Deer Creek in meadow 9N83-2 would be delineated with boulders to limit the width of the crossing at both ends.
	1b. Within critical aquatic refuges, occupied habitats, or areas proposed as Critical Habitat, mitigation measures to avoid impacts to the 3 listed amphibians will be implemented for ground disturbing equipment to reduce the risk of killing individuals and adversely affecting their habitat (per S&G 109). The measures may include avoiding the activity all together.	To mitigate the risk of disturbing or crushing SNYLF or YOTO, qualified personnel would survey the areas where ground disturbing activities are planned to occur just prior to the start of the work. If either SNYLF or YOTO are found within the area, their safety shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in USDI FWS 2014. Since YOTO have high site fidelity to burrows, extra attention will be given to identity existing burrows and avoided.
	1e. The use of low velocity water pumps & screening devices for pumps (S&G 110) will be utilized during drafting for project treatments to prevent mortality of eggs, tadpoles, juveniles, & adult SNYLF & YOTO	Yes, see Design Criteria.
	1g. Fuels and other toxic materials will be stored outside of riparian conservation areas and critical aquatic refuges (per S&G 99) to limit the exposure of the listed species to the toxic materials associated with vegetation management activities.	This is standard practice as directed by S&G 99. There are no CARs in the project area. No fuel storage would take place within RCAs. Refueling would take place in RCAs only where there is no other alternative. Spill prevention and cleanup of hazardous materials would be implemented in accordance with FS timber sale type B contract clauses and in accordance with the Eldorado Hazardous Spill Notification and Response Plan
	1h. If management activities are proposed in an RCA, site-specific mitigation measures will be designed to (1) minimize risk of sediment entry into aquatic systems and (2) minimize impacts to habitat for aquatic- and riparian-dependent species (per S&G 92).	Activities within RCAs were evaluated by the interdisciplinary team on-the-ground. Site specific measures to improve the condition of routes 19E01 and 09N01 in meadow and stream crossings or sections of each Route traveling adjacent to meadows or streams were designed to minimize the risk of sediment delivery to aquatic and meadow habitat as described in the Proposed Actions for Alternatives 1, 3, and 4. These actions include; 19E01 – streambank erosion rehabilitation (planting vegetation and/or sod plugs), hardening stream crossings, trail re-route and abandoned trail decommissioning, and trail delineation and 09N01 – construction of sediment catch basins at culverts, installation of new culverts, clearing existing culverts, graveling road surface, repair or installation of rolling dips, and linear grading of the road surface.
	1j. When a project results in riparian vegetation being outside the range of natural variability to an extent that the three listed amphibians and/or their habitats may be negatively affected, design criteria will be incorporated to mitigate effects or restore riparian vegetation to the natural range of variability during project implementation (per S&G 105).	Project activities will not alter riparian vegetation outside the range of natural variability. The actions proposed in Alternatives 1, 3, and 4 contain site-specific measures to re-vegetate the streambanks of Blue and Deer Creek in areas that have been damaged by past OHV use.
	1n. Management activities will not adversely affect water temperatures required for local species, including the three amphibian species (per S&G 96).	1. Changes in canopy cover provided by forest or riparian vegetation surrounding aquatic habitats can significantly affect water temperature. No actions proposed in this project are expected to alter the amount of shade on any water body because vegetation near aquatic features would not be removed. As a result, water temperatures would not be adversely affected by the actions proposed. 2. Taking No Action may affect water temperatures in a different manor because continued increases in sedimentation and erosion are expected if the actions proposed for this project are not implemented. Increased sedimentation may reduce pool volume and interrupt flow. Shallow, slow flowing streams would be warmer than a deeper, more swiftly flowing stream. If any one of the action alternatives are implemented however, water temperature would not expected to be adversely affected.
	1o. For projects that could adversely affect streams to the extent that the three listed amphibians and/or their habitats may be negative affected, and the streams are already outside the range of natural variability, mitigation measures and short-term restoration actions will be implemented to prevent declines and/or improve conditions. Long-term restoration actions will be evaluated and implemented according to priority (per S&G 102), which includes adverse impacts to listed species.	Site specific measures to improve the condition of routes 19E01 and 09N01 at stream crossings or sections of each Route traveling adjacent to streams were designed to minimize the risk of sediment delivery to aquatic habitat as described in the Proposed Actions for Alternatives 1, 3, and 4. These actions include; 19E01 – streambank erosion rehabilitation (planting vegetation and/or sod plugs), hardening stream crossings, trail re-route and abandoned trail decommissioning, trail delineation. 09N01 – construction of sediment catch basins at culverts, installation of new culverts, clearing existing culverts, graveling road surface, repair or installation of rolling dips, and linear grading of the road surface.

Measure Type	Direction	Compliance
General Cont.	1q. Culverts and stream crossings will not create barriers except for the benefit of the three Sierra Nevada amphibians. Water drafting sites will be located to avoid adverse effects to instream flows and depletion of pool habitat. Where possible, maintain and restore timing, variability and duration of floodplain inundation and water table elevation in meadows, wetlands, and other special aquatic features (per S&G 101).	Several of the culverts associated with Route 09N01 would be repaired or replaced to allow passage for the 100-year flow event and sediment and debris carried by the flow event under the action alternatives (1, 3, and 4). The new culverts or other structures would allow passage of aquatic dependent species.
	1r. Corrective actions will be implemented when needed to restore hydrologic connectivity of aquatic systems that are disrupted by roads (per S&G 100).	Repairs to Route 09N01 proposed in this project would bring the meadows crossed or bordered by this Route into compliance with Standard & Guideline #100. Repairs include; construction of sediment catch basins at culverts, installation of new culverts, clearing plugged culverts, re-graveling the Route surface, repair and installation of rolling dips, and linear road grading. These actions would greatly reduce runoff and sediment from reaching the meadows and subsequently prevent additional drying out of the meadow. Surface water and ground water would be able to move more freely through the meadow and the portions of the meadows that are downslope of the roads should become wetter.
	1t. Actions consistent with S&Gs and the desired conditions of aquatic habitats will be implemented after identifying and evaluating adverse effects of recreation-associated activities (per S&G 116).	Site specific measures to improve the condition of OHV routes 19E01 and 09N01 in meadow and stream crossings or sections of each Route traveling adjacent to meadows or streams were designed to minimize the risk of sediment delivery to aquatic and meadow habitat as described in the Proposed Actions for Alternatives 1, 3, and 4. These actions include; 19E01 – streambank erosion rehabilitation (planting vegetation and/or sod plugs), hardening stream crossings, trail re-route and abandoned trail decommissioning, and trail delineation and 09N01 – construction of sediment catch basins at culverts, installation of new culverts, clearing existing culverts, graveling road surface, repair or installation of rolling dips, and linear grading of the road surface.
Watershed Restoration	1a. Protection needs will be established with appropriate restrictions and mapped prior to commencement of operations (per BMP 1.4). This includes wetlands, meadows, lakes, springs, stream-course protection zone widths, etc.	Suitable SNYLF and YOTO habitats have been identified and mapped (See Figures 4 and 8). Design criteria associated with SNYLF and YOTO will be implemented in these mapped areas.
	1b. A limited operating period may be established to ensure that negative impacts to resources may be avoided; contract provisions can also be used to close down operations during adverse operating conditions (per BMP 1.5)	Although BMP 1.5 is associated with Timber Sales (contract clause c6.313) design criteria have been developed to limit the period of project implementation to ensure the lowest risk to YOTO and SNYLF. The use of ground-based mechanized / motorized vehicles or equipment to implement the restoration activities would not occur during the proposed seasonal closures for routes 19E01 and 09N01 to limit impacts to YOTO and SNYLF (See Design Criteria, Appendix C).
	1h. Soil erosion will be minimized to protect water quality via the stabilizing influence of vegetation foliage and root networks. Surface-disturbed areas will be revegetated with grass or browse species between previously planted trees as needed for control of overland runoff and to meet wildlife needs (per BMP 5.4).	Site-specific streambank erosion rehabilitation (re-vegetation and/or sod plugs) is proposed to occur in each action alternative in areas previously impacted by OHV use.
	1w. Watersheds will be restored to repair degraded watershed conditions and improve water quality and soil stability. Watershed restoration is a corrective measure to improve ground cover density; improve infiltration; prevent excessive overland runoff and conserve the soil resource; stabilize stream banks and stream channels; improve soil productivity; reduce flood occurrence and flood damage; and improve overall watershed function (per BMP 7.1)	- The actions proposed in this project (i.e. trail re-route, streambank restoration, stream crossing hardening, road maintenance, maintain/install catch basins at culverts, install new culverts where needed, gravel additions on steep route sections, rolling dip repair, re-grading the road, and clearing out/ upgrading undersized culverts within the specified alignment and grade tolerances) are designed as corrective and restoration actions. - Post project implementation we expect that a) Downstream water quality and soil stability would be improved by reducing the rate and occurrence of erosion and sedimentation, b) Ground cover density would be increased and streambanks stabilized at the streambank restoration areas through planting, c) Infiltration along routes 19E01 and 09N01 would be improved by repairing rolling dips, and re-grading the road, d) Excessive overland runoff would be prevented through the maintenance, repair and installation of new culverts.
	1aa. Tractor operations will be limited in wetlands and meadows. In order to limit turbidity and sediment production resulting from compaction, rutting, runoff concentration, and subsequent erosion use of mechanical equipment will be excluded in wetland and meadows except for the purpose of restoring wetland and meadow functions. Sediment and other pollutants will be controlled from entering streamcourses. The application of this BMP will be mandatory on all vegetation-manipulation projects as prescribed in the environmental documentation (per BMP 5.3). Specific protection measures will be established for each area that could incur adverse water-quality impacts (per BMP 1.18).	Mechanical operations in wetlands and meadows would be avoided except during the implementation of corrective actions along Route 09N01 that are designed to result in compliance with S&G 100. However, if mechanized equipment travels off the hardened road surface in order to implement restoration work (such as the reroute, culvert installation, repair, or maintenances) these areas shall be surveyed for existing Yosemite toads and Sierra Nevada Yellow-Legged Frogs by qualified FS personnel just prior to starting work to avoid crushing. If either SNYLF or YOTO are found within the area, their safety shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in USDI FWS 2014.

Measure Type	Direction	Compliance
Watershed Restoration Cont.	1ee. Adverse water-quality impacts associated with destruction, disturbance, or modification of wetlands will be avoided (per BMP 7.3). Factors that will be evaluated include, but are not limited to, water supply, water quality, recharge areas, functioning of the wetland during flood and storm events, flora and fauna, habitat diversity and stability, and hydrologic function of riparian areas.	The actions proposed for this project that may be implemented within meadow habitat were developed to make corrective or restorative actions to improve and maintain hydrologic and biologic function of that meadow system. None of the actions proposed would result in a "net loss" of wetland /meadow habitat. Instead, the actions are expected to increase the area of properly functioning meadow habitat and potentially increase wetland habitat down-slope of project implementation.
	1ff. A water quality monitoring plan will be part of an environmental document, a management plan, or a special use permit, or it will be developed in response to other needs to evaluate the implementation and effectiveness of a management prescription in protecting water quality (per BMP 7.6).	All sites will be monitored by a Forest Hydrologist and Road Engineer after project implementation. The need for a specific monitoring plan will be assessed by the Forest Hydrologist during the post implementation monitoring. A plan, if needed, would be developed at that time.
	1gg. Management by closure to seasonal, temporary, and permanent use will be used to exclude activities that could result in damages to either resources or improvements, including impaired water quality from roads and trails (per BMP 7.7). Closure to use will occur when the condition of the watershed must be protected to preclude adverse water-quality effects and adverse impacts to the listed amphibians (per BMP 1.5; per BMP 2.9).	Alternatives 1, 3, and 4 propose a seasonal road closure for the portions of routes 19E01 and 09N01 that are currently closed (see Section IV, Description of the Proposed Action). These proposed seasonal closures are intended to prohibit OHV use during the period of the most likely overland movement of SNYLF and YOTO. These proposed seasonal closures would also benefit water quality because the routes would have an opportunity to dry-out before use is opened to the public. Erosion and sedimentation would be less likely after the routes have dried.
	1hh. For any new proposed action or activity that may affect water quality, the Forest Service will examine all past, present, and future activities in a sub-watershed that may have a cumulative effect to water quality and beneficial uses (uses specified in water quality standards for each water body or segment), including the three listed amphibians if present in the sub-watershed or downstream.	See Cumulative Effects in Section VI of this report.
Road and Trail Maintenance	2bThe Forest Service will minimize water, aquatic, and riparian resource disturbances that may affect individuals of the three amphibian species and related sediment production when constructing, reconstructing, or maintaining temporary and permanent water crossings (BMP 2.8). Specifications for stream crossing areas and design, construction/reconstruction of permanent and temporary crossings, as well as maintenance of these crossings included in 36 technical specifications listed in BMP 2.8 will be followed.	- Route 19E01 crosses Deer Creek at Meadow 9N83-2. Part of the actions proposed for this project include hardening the approaches at this stream crossing using large cobble and rock between 8-16" diameter and to use boulders to better define the Route and limit the width of the crossing on both sides of Deer Creek. These actions are intended to reduce erosion and sedimentation. - Several of the culverts associated with Route 09N01 would be repaired or replaced to allow passage for the 100-year flow event and any sediment and debris carried by the 100-year flow event under each action alternative (1, 3, and 4). The new culverts or other structures would allow passage of aquatic dependent species. - All equipment would avoid entering or crossing into aquatic habitat to the extent possible during restoration activities associated with the hardening of the approaches or Route 19E01's stream crossing at Deer Creek (in Meadow 9N8302) and the culvert installation, repair, and maintenance on Route 09N01. - Where equipment travels off the hardened road surface or crosses through stream habitat for restoration work (such as the reroute, culvert installation, repair, or maintenance, or hardening stream approaches), these areas shall be surveyed for existing Yosemite toads and Sierra Nevada yellow-legged frogs by qualified FS personnel just prior to starting work to avoid crushing. If either SNYLF or YOTO are found within the area, their safety shall be assessed by qualified personnel and dealt with according to the Terms and Conditions described in USDI FWS 2014-
	2c. Measures described in BMP 2.11 to prevent adverse effects from fuels, lubricants, cleaners, and other harmful materials on skin-respiring amphibians will be implemented.	Fuels and other toxic materials will be stored outside of riparian conservation areas (per S&G 99) to limit the exposure of the listed species to the toxic materials associated with vegetation management activities.
	2d. To protect water quality during road maintenance and operations, 31 practices related to road inspection, maintenance planning, and operations will be implemented as appropriate based on local site conditions (per BMP 2.4).	All applicable BMPs will be followed. Post decision a road design package will be developed incorporating each applicable BMP and input from an Erosion Control Plan (if it is determined one is necessary). The final road package will be designed as a collaborative effort between the road engineers and hydrologist. The final road package and Erosion Control Plan would be in the project record prior to implementation of the project.
	2h. A project-specific erosion control plan will be developed to effectively limit and mitigate erosion and sedimentation from any ground-disturbing activities, through planning prior to commencement of project activity, and through project management and administration during project implementation (per BMP 2.13)	Engineering and hydrology personnel will determine the need for (see exemption categories listed in BMP2.13) an Erosion Control Plan post-decision but prior to the completion of the road package and implementation of any project actions. The ECP will be prepared to complement design and site-specific prescriptions. A detailed and accurate ECP will allow Forest Service staff to conduct efficient, meaningful inspections of ground-disturbing projects, and will provide a needed check to ensure that mitigation measures for addressing impacts from the activities are accurately communicated to field staff.
	2j. The effects to riparian and aquatic resources of creating, maintaining and using routes and areas for motorized off-highway vehicles (OHV) will be mitigated by OHV-specific BMPs designed for each individual project or batch.	Alternatives 1, 3, and 4 propose a seasonal road closure for the portions of routes 19E01 and 09N01 that are currently closed (see Section IV, Description of the Proposed Action). These proposed seasonal closures are intended to prohibit OHV use during the period of the most likely overland movement of SNYLF and YOTO. These proposed seasonal closures would also benefit water quality because the routes would have an opportunity to dry-out before use is opened to the public. Erosion and sedimentation would be less likely after the routes have dried.

Measure Type	Direction	Compliance
Road and Trail Maintenance Cont.	2k. OHV trails will be located to reduce the risk that sediment originating from designated trails and areas will enter watercourses and water bodies to minimize hydrologic connectivity, and by incorporating drainage structures into trail design to disperse concentrated runoff (per BMP 4.7.2).	- This project proposes to re-route Route 19E01 to move the Route away from areas of active streambank erosion while improving the angle of the approach to the existing stream crossing to reduce future streambank degradation. These actions are expected to reduce the hydrological connectivity and the re-routed portion would be designed to disperse concentrated runoff and properly drain. The old section of trail would be blocked off, decommissioned, and rehabilitated by planting with locally collected vegetation. -As proposed, this project would maintain/install catch basins at culverts, install new culverts where needed, add gravel on the steep sections of the roadway, repair rolling dips, re-grade the road, and clear out/ upgrade undersized culverts within the specified alignment and grade tolerances. These maintenance actions would bring Route 09N01 into compliance with S&G 100, minimize the impact to hydrologic connectivity, and improve the drainage structures along the Route to disperse runoff and reduce sedimentation.
	2l. The discharge of sediment into water bodies from OHV use will be minimized or prevented by implementing the appropriate techniques outlined in BMP 4.7.3 for crossing location, trail approaches to watercourses, and design and construction of watercourse crossings.	- Route 19E01 crosses Deer Creek at Meadow 9N83-2. Part of the actions proposed for this project include hardening the approaches at this stream crossing using large cobble and rock between 8-16" diameter and to use boulders to better define the Route and limit the width of the crossing on both sides of Deer Creek. These actions are intended to reduce erosion and sedimentation. - Several of the culverts associated with Route 09N01 that are impeding movement of surface water and ground water through the meadows would be repaired or replaced to allow passage for the 100-year flow event and any sediment and debris carried by the 100-year flow event under each action alternative (1, 3, and 4). The new culverts or other structures would allow passage of aquatic dependent species and water to move more freely through the meadows.
	2m. The discharge of sediment into water bodies will be minimized or prevented during construction, reconstruction, and realignment of OHV trails (per BMP 4.7.4).	-Excessive runoff and sediment from Route 09N01 that is currently entering multiple meadows would be greatly reduced by the proposed actions; a) construction of sediment catch basins at culverts, b) installation of new culverts, c) clearing sediment and debris out of culverts, d) placement of gravel on the road surface, e) repair and/or installation of rolling dips, and linear grading of the road surface. -Erosion and sedimentation from Route 19E01 would be greatly reduced by the proposed actions; a) hardening the approaches to the Deer Creek crossing, d) realignment of the approach at Deer Creek associated with the proposed re-route.
	2n. OHV trails will be monitored to reduce the risk of sediment delivery to water, aquatic, and riparian resources by identifying watercourse crossings and OHV trail segments in need of maintenance, setting priorities for maintenance, and identifying OHV areas and trails that require closure and restoration (BMP 4.7.5).	- routes 19E01 and 09N01 were monitored or surveyed by forest staff prior to the formulation of the action proposed for this project. Corrective and restorative actions needed in order to reduce sediment delivery to the aquatic and riparian resources were identified. Therefore this project is directly implementing BMP 4.7.5. - Future implementation monitoring of the portions of routes 19E01 and 09N01 currently closed will occur as described in the Eldorado National Forest Travel Management SEIS Settlement Agreement Monitoring Plan (2015). This monitoring will determine the effectiveness of the corrective and rehabilitative actions that would be implemented as a result of this project. It will be conducted twice a year, once at the opening of the route in the spring and once in the fall to determine if impacts continue to occur. -Monitoring of the other sections of routes 19E01 and 09N01 outside of the project area and actions will be performed in accordance with the OHV Monitoring Plan described in the 2008 ENF Public Wheeled Motorized Travel Management Decision.
	2p. The discharge of sediment into watercourses and water bodies will be minimized or prevented by permanently restoring OHV-damaged areas, watercourse crossings, and OHV trails no longer designated for use (per BMP 4.7.8).	The actions proposed in this project were identified and designed in accordance with BMP 4.7.8 and address the ten step Restoration of OHV-damaged Areas (USDA 2006); a. Identify the source of the problem – DONE; ID team visited routes 19E01 and 09N01 and identified areas in need of corrective or restorative actions. b. Effectively close the area to OHV traffic – DONE as a result of the ENF Travel Management SEIS c. Reshape the land to its original contour – PROPOSED ACTION; re-grade road d. Disperse concentrated runoff – PROPOSED ACTION; repair rolling dips

		e. Prepare the seedbed – f. Planting or seeding – PROPOSED ACTION; streambank restoration would include planting native vegetation or sod plugs. g. Stabilize the surface – PROPOSED ACTION; stream crossing approach hardening, gravel additions on steep sections of routes h. Signing – PROPOSED ACTION; signs and maps displaying the seasonal closure areas would be posted on routes 19E01 and 09N01 i. Enforcement and Monitoring – Seasonal Closures and the prohibition of cross-country travel would be enforced. Future implementation monitoring will be conducted to determine the effectiveness of the corrective and rehabilitative actions that would be implemented as a result of this project (as described in the Eldorado National Forest Travel Management SEIS Settlement Agreement Monitoring Plan (2015)). It will be conducted twice a year, once at the opening of the route in the spring and once in the fall to determine if impacts continue to occur. -Monitoring of the other sections of routes 19E01 and 09N01 outside of the project area and actions will be performed in accordance with the OHV Monitoring Plan described in the 2008 ENF Public Wheeled Motorized Travel Management Decision.

Appendix D: Risk of cumulative watershed effects (CWE) in the three watersheds that contain the Deer Valley/Blue Lakes Project.[1,2,3,4]

				ERA in 2014 - expressed as a percent of the TOC	
Watershed	**ENF Number**	**Total watershed Acres**	**Risk of CWE in 2016 - all alternatives**	**% ERA in 2016**	**% ERA expressed as a percent of the TOC in 2016**
Meadow Creek	1521	4,981	Low	0.6	6.3
Blue Lakes	1411	5,277	Low	2.3	22.5
Lower Deer Creek	1711	2,955	Low	0.2	1.9

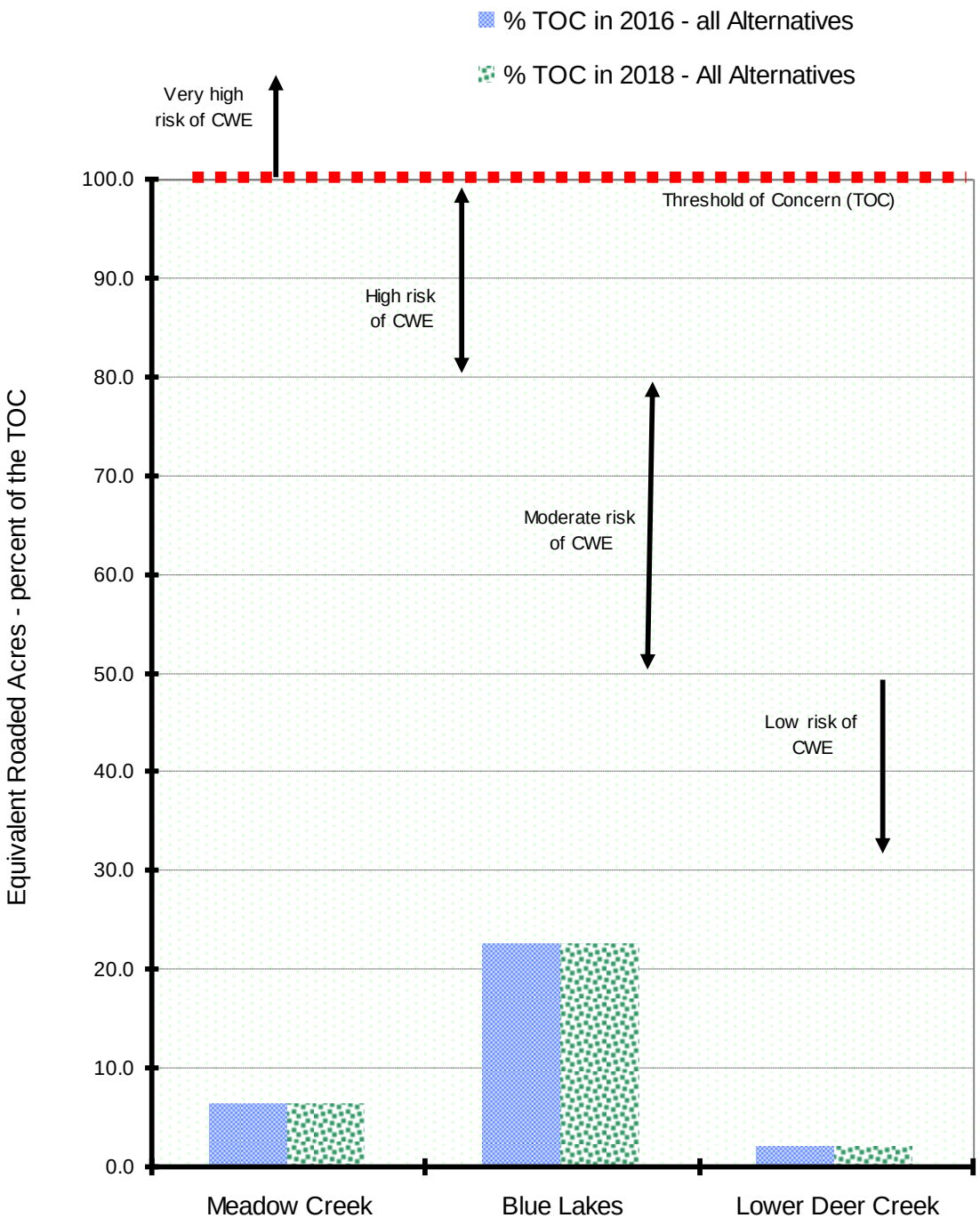
[1] CWE = Cumulative Watershed Effects. ERA = Equivalent Roaded Acres. ENF = Eldorado National Forest. TOC = Threshold of Concern..

[2] Risk of CWE, expressed as a percent of the TOC: 0 - 49% = Low risk; 50 - 80% = Moderate risk; 81 - 100% = High risk; greater than 100% (greater than the TOC) = Very high risk.

[3] No reasonably foreseeable land disturbances have been identified in these watersheds. In order for a land disturbance to be considered reasonably foreseeable, the number of acres, type of ground disturbance, and year(s) of disturbance must be identified.

[4] Assumes that Alternative 1, 3, or 4 would be implemented in 2016.

Risk of Cumulative Watershed Effects (CWE) in 2016 - expressed in terms of Equivalent Roaded Acres (ERA) as a percent of the Threshold of Concern (TOC) - for the watersheds that contain the Deer Valley/Blue Lakes Project.[1]



[1] Assumes that Alternatives 1, 3 and 4 are implemented in 2016.

Appendix E – Project Area Map